THE GANDER AIR CRASH

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by

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FOREWORD

The Research Team and Methodology

This Report was prepared for Emergency Planning Canada by the Emergency Communications Research Unit (ECRU), Carleton University, Ottawa, Ont., under Supply and Services Canada Contract #5A-518 dated July 2, 1985, entitled "Study of the Effectiveness with which Authorities in Charge of Emergencies Communicate with the General Public and the Reaction of the General Public to Emergencies."

This study deals with the response to the December 12, 1985 Gander air crash when 256 persons, mostly United States soldiers, died. It does not deal in any way with the possible causes of the crash.

ECRU's purpose is not to evaluate emergency response or emergency planning, but rather to report in an accurate and detailed way what happened. It is felt this allows others to learn from this experience.

It should be clear from the information contained in this report that a great many persons and agencies, mostly federal government personnel, devoted a lot of time to assisting ECRU in gathering information. They deserve our deepest thanks and appreciation.

The ECRU team interviewed more than 500 persons in the Gander area, both residents of the community and those involved in the response. As is customary, all were promised and have been given anonymity.

Follow-up visits to Gander were made to check some of the reported facts. Pertaining draft sections of the report were also submitted to involved agencies for review and comments.

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THE GANDER AIR CRASH

EXECUTIVE SUMMARY

When a DC-8 crashed near Gander International Airport on December 12, 1985, the response by local emergency agencies was generally quick, efficient and according to plans.

The initial response was triggered by a tower operator who had seen the plane disappear. He used a hotline to call the airport crash fire rescue (CFR) and the airport detachment of the Royal Canadian Mounted Police (RCMP). He also called a number of others including the air traffic Area Control Centre (ACC), Canadian Forces Base (CFB) Gander, the local telephone company, his own manager and two incoming commercial flights (he asked the pilots to try and spot the exact location of the crash).

Each of these calls triggered further action. The airport crash fire rescue responded to the scene after notifying the fire chief. The RCMP notified their own personnel, tracked down the airport duty manager, called the hospital and responded to the scene.

The Area Control Centre notified other control centres and activated maintenance crews to check the airport's navigational aids. CFB Gander started a complete base recall and sent its search and rescue personnel, medics, ambulance and Military Police (MP) to the site. The local telephone company called the town fire department and others in the town, and one of the incoming flights spotted the crash location.

These actions in turn created even further response. The RCMP's call to the duty manager led to a complete build-up of airport personnel, both at a pre-designated off-site emergency co-ordination centre (ECC), and at other locations such as the airport fire hall where assistance, supplies and personnel could be provided as needed. The call to the hospital led to a complete recall of hospital staff plus the despatch of its ambulance and a triage unit to the site. The call to the local fire department led to a massive response from the town fire personnel, sufficient to undertake the first complete search of the site.

As things developed still more activity took place. The base recall was followed by the formation of the Base Defence Force. Some members from this group, which can be freed from regular duties in an emergency, took on perimeter control at the site. Other military personnel hauled the bodies out of the site and transported them to the temporary morgue. Still others acted as drivers for visitors, which included members of the Canadian Aviation Safety Board and the U.S. Army.

After it was verified that there were no survivors, the hospital sent personnel to the site to tag the bodies and assist the RCMP in setting up and staffing the temporary morgue at the airport.

The critical point about this response was not that it happened, but that it happened according to plans. The calls from the tower were made from a checklist in the tower, exactly as planned. The RCMP call-out and site control followed the RCMP plan, as did the creation of an on-site grid, and the identification and removal of the bodies from the site. The establishment of the off-site ECC at the airport was part of the Transport Canada plan. The call-outs at the base and the hospital followed well-established fan-out systems. The town fire department reacted according to its plan for dealing with out-of-town fire emergencies. Even the on-site and off-site command structures were carried out according to plans.

On-site, the fire supervisor first took charge, then handed over command to the airport fire chief who, in turn, passed over command to an RCMP inspector. All agencies then took direction from the RCMP inspector. Off-site, the ECC was run by the airport manager and was staffed by the RCMP superintendent, the CFB Gander base commander, an airline representative, the deputy mayor, and additional Transport Canada personnel, including a scribe.

The ECC performed a number of functions. It provided a location where the three senior commanders; i.e. the airport manager, the RCMP superintendent and the base commander could meet. It also provided an off-site location where outside agencies could make contact. The Canadian Aviation Safety

Board and the United States military made initial contact with the ECC.

The on-site and off-site command centres were linked by several communications systems:

- Transport Canada radios in a command vehicle
- RCMP radio
- a radio telephone vehicle brought to the site by Terra Nova Telephone
- military radios that linked the site to a military command post, and which in turn connected to the ECC by a telephone.

When the fire departments needed volunteers from the base fire department, the town used its on-site radio to get the town fire-hall to phone the base fire department.

Not everything worked perfectly. An initial communications problem occurred when the airport crash fire rescue radios would not work when the airport vehicles went down the hill into the crash area. Those radios required line of sight with their base station at the tower.

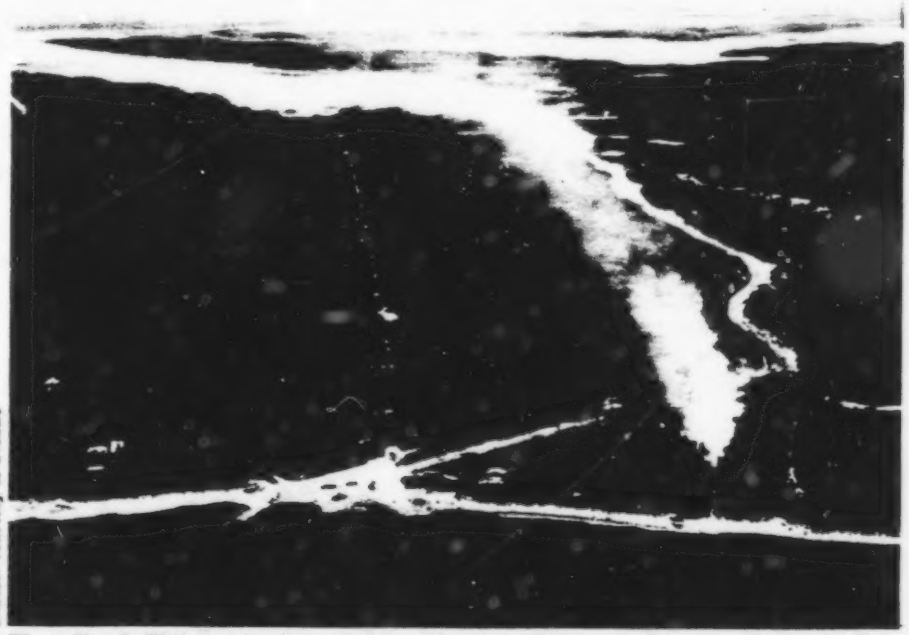
There was a problem when the local telephone operator could not find her checklist, and had to call a supervisor at home to find out who in town had to be called. Her call to the fire department was an error -- according to plans this responsibility lay with the ECC. She was supposed to call the fire chief at home to brief him.

There were very few communication or command breakdowns. A serious one occurred when the RCMP and Transport Canada each ordered body bags and then each cancelled. The result was a shortage of body bags.

The only off-site/on-site conflict occurred when the airport manager agreed to let the media go on the site without consulting the RCMP site commander. The site commander did not feel the decision was appropriate. He sent the media away minutes after they arrived.

Other than those few problems, however, the system worked smoothly. The first response dealt with the severe fire and with search and rescue. Once it was clear there were not survivors, efforts turned to fighting the fire. Then it was a question of body removal and identification, and finally the investigation into the cause of the crash by the Canadian Aviation Safety Board. Even while this was happening a number of other agencies arrived at the site. These included representatives of the Coast Guard, Atlantic Petroleum and the municipal public works. There had been a spill of jet fuel into Gander Lake, the town's water supply source.

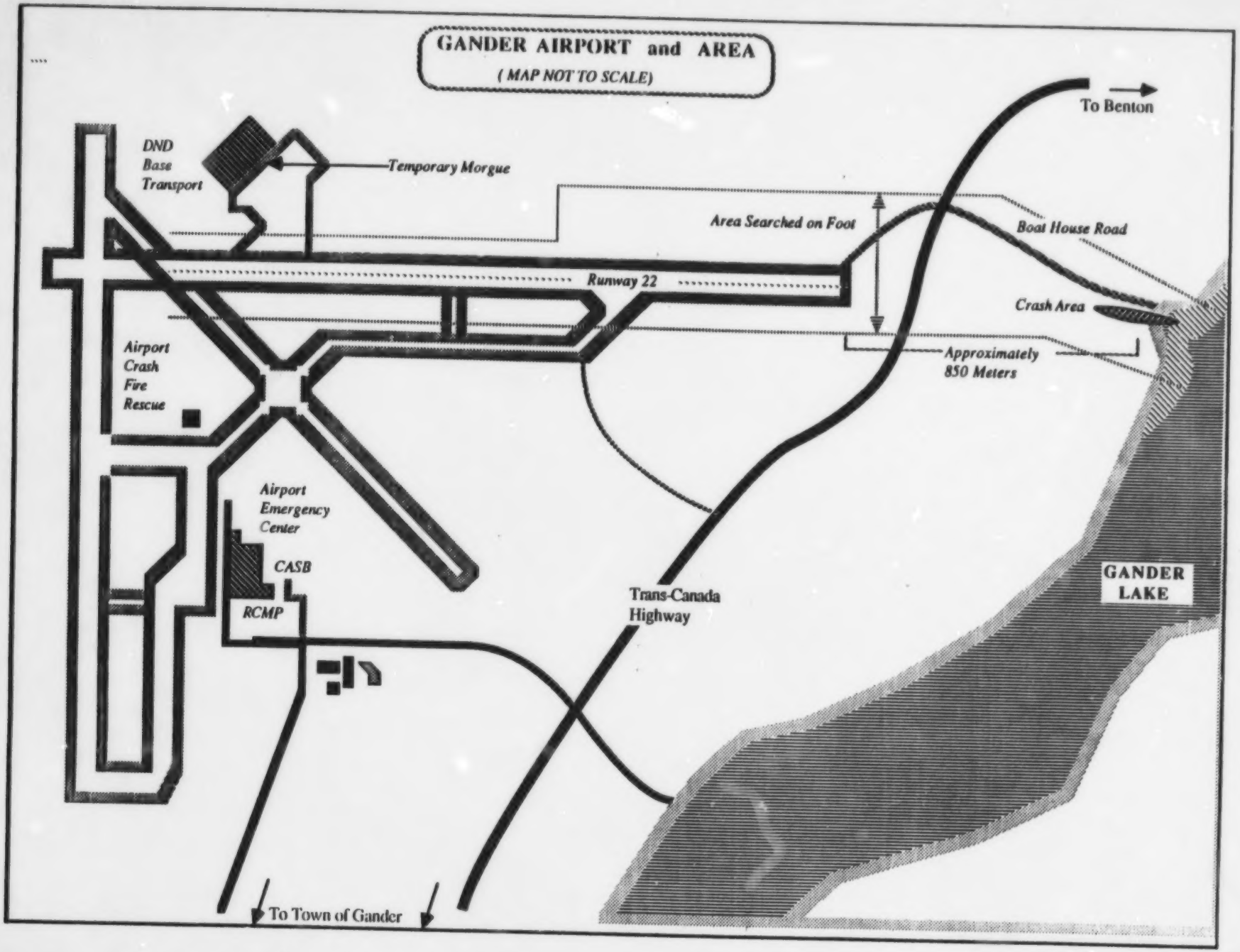
Off-site, the incident attracted more than 300 media representatives. They were briefed by: the airport manager, the RCMP, a U.S. Navy spokesperson, Transport Canada information staff, and finally, upon their arrival, by officials from the CASB.



(Photo: courtesy of CASB)

Photo No. 1 Oblique air photo of the crash scene off the end of runway 22. Smoke from the post crash fire is evident.

THE INCIDENT


GANDER AIRPORT and AREA
(MAP NOT TO SCALE)
To Benton
DND
Base
Transport
Temporary Morgue
Area Searched on Foot
Boat House Road
Runway 22
Crash Area
Approximately
850 Meters
Airport
Crash
Fire
Rescue
Airport
Emergency
Center
CASB
RCMP
Trans-Canada
Highway
GANDER
LAKE
To Town of Gander

INTRODUCTION

Gander, Newfoundland, is an aviation town. The International Airport, sprawled on its east side, is Gander's largest single employer. The airport itself, and the industries and businesses it supports, provide jobs for about 4,400 persons or about one job for every three in the town of 13,000. The high figures are explained by the fact that the airport also draws employees from nearby towns such as Gambo, Appleton, and Glenwood.

The dependence on the airport means that even those who are not directly employed still have a keen interest in what goes on there. It is the airport that creates the population base which in turn provides the customers for the stores and the patients for the hospitals. It is the airport, along with the military, that makes the major demand on local housing and, as a result, on local schools.

Just as Kitimat is tied to aluminum, Calgary to oil, Sudbury to nickel, Hamilton to steel and Sydney to coal, Gander is tied to aviation. For the people of Gander, aviation is an identity. The Town Hall is built in the shape of an airport. The local streets are named after famous pilots: Rickenbacker, Byrd and Earhart. Alcock and Brown Crescents are named after Captain John Alcock and Lieutenant Arthur Whitten Brown, who made the world's first non-stop Atlantic crossing on the 14th and 15th of June 1919, eight years before Lindberg first flew from Garden City, New York, to Le Bourget (near Paris), on May 20th, 1927.

Local nightclubs have names like "The Flyer" and "747", and most of the postcards of Gander depict planes or the airport. Even the town itself -- built in the 1950s from a plan by Transport Canada -- forms the shape of a Gander's head.

And it isn't just the airport. Gander is home to the Area Control Centre (ACC) which services flights eastbound over the Atlantic to Europe and westbound from Europe to North America. The system operates in large part by computer. Gander feeds its data each night into the main centre in Prestwick, Scotland, while Prestwick sends its information to Gander each morning. Gander is also linked to other main North American centres such as Montreal and New York.

Planes that stop at Gander build up an even tronger relationship. They are passed to the Area

Control Centre to tower control, and then handed over to the Gander tower. After take-off, they are passed from the tower to the Area Control Centre, which can actually monitor the planes as they head down the runway and take to the air.

Gander has experienced some major air crashes. During World War II, 29 pilots died in one crash. After the war, 27 people perished when a Belgian airliner crashed; and 38 people died when a Czechoslovakian airliner went down. In the case of the September 18, 1946 Belgian crash, the anxiety over possible survivors was heightened by the remote location of the crash, 35 kilometres south-west of Gander. Even though the plane was missing for two days 18 people still survived. Gander's Arts and Culture Centre was donated in appreciation of the 36 people rescued from the Czechoslovakian crash on September 5, 1967.

There have been other mementos. In 1941, the co-discoverer of Insulin, Sir Frederick Banting, died in a crash near Gander. One Gander resident still wears a ring made from a piece of wreckage to commemorate the crash.

Gander has had to survive economic problems such as when Eastern Provincial Airlines moved its facilities from Gander to Halifax. And when Air Canada threatened to re-route its international flights to St. John's (and later did). The community has reacted with fear and anger as its people see more and more flights being moved to larger centres.

The airport also brings a unique international flavour to the town. Cubans, East Germans, Russians, Rumanians or United States Marines -- at any given moment the international lounge at Gander's International Airport can be filled with a mixture of nationalities. Citizens from Eastern Block countries are regular visitors. They were, until recently, banned from U.S. airspace and afraid to land in the U.S. for fear of defections. Aeroflot, the Soviet airline, rents an entire apartment floor in Gander for its maintenance crews and other staff. It also keeps its own supply of fuel at the airport.

Except for the maintenance staff and the air crews, most of these persons are are temporary visitors. Unless they are grounded by bad weather or technical problems, they just get off their flight, walk across the tarmac, then wait in the lounge until it is time for reboarding.

Occasionally visitors stay a bit longer. On Christmas Eve 1985, three Rumanians decided to defect at Gander. They were the 100th, 101st and 102nd to defect there in one year. Their defection led to a technical delay -- Aeroflot insists on unloading all baggage and checking an aircraft before a flight will take off after a defection.

To those living in Gander, these things mean that the airport is not just a big development on the edge of town, it is a raison d'être. They identify with the airport in a way different from those in a large city with a diverse economic base. At Gander, anything happening at the airport has an immediate effect on everyone in town.

THE AIR CRASH

During the early morning hours of Thursday, December 12, 1985, the lounge at Gander's International Airport was filled with 248 soldiers waiting while their Arrow airplane was being refuelled and the aircrew was checking out the weather with Allied Services, the company that assists international carriers.

The soldiers were in high spirits. They were on their way home for Christmas after five months of service in the Sinai Peninsula. There were line-ups for telephones as they made last minute calls to loved ones. The small gift shop was flooded with servicemen buying last minute gifts and "I survived Gander" T-shirts. Others began humming a chorus of The Little Drummer Boy.

After a 70-minute stop-over in Gander, the 3rd Battalion, 502nd Infantry of the 101st Airborn Division, the division known as the "Screaming Eagles," plus a few other units from Fort Campbell, Kentucky, boarded the plane for the final leg of the trip home. Their 13-hour journey from the Middle East had taken them from Cairo to Cologne. Fort Campbell, Kentucky - home - was only four hours and 47 minutes away. The soldiers boarded under the watchful eyes of an RCMP officer -- an officer who would later collect parts of their bodies. Earlier, many of them had wished the Transport Canada official on duty at the airport (the Duty Manager) "Merry Christmas." He too, would remember the faces when the plane crashed.

At 0645 hours local time, the airport tower gave the plane clearance for take-off. It began to gather speed along runway 2204, which heads almost directly another patch of woods and Gander Lake. (See map)

The plane never reached the lake. Eight hundred metres from the end of the runway, just past the Trans-Canada Highway, the plane first hit some trees with its tail section then, rolling to the right, smashed its wings into more trees, then piece by piece, began to disintegrate as it bounced down the wooded hillside. It lost part of its undercarriage, its tail section, then more of its undercarriage as the cockpit broke away and landed to the far right of the wreckage. The plane's front section buried itself in a crash-created ditch by a brook. The crash site was about 350 metres long.

As the plane crashed, bits of plane and people were scattered around the area. The pilot, for example was found clutching onto the wheel near where the plane finally stopped. But the problems had not ended. The plane carried a full load, 46,000 kilos of fuel. On impact the fuel caught fire, creating a fireball that could be seen 18 kilometres away. Any passengers not killed on impact were quickly burned. Some of the bodies were in the familiar arms-up posture of a fire victim. It was the worst air crash on Canadian soil: 256 dead.

When the plane went down, Gander's emergency response mobilized in the hope they could rescue survivors, as they had done in the Czechoslovakian and Belgian crashes. The local response agencies were soon joined by provincial and federal emergency agencies, combining a high level of planning with experience in air crashes. In all, more than 60 agencies gained access to the crash site -- everyone from the Coast Guard, to an explosives disposal unit, to an employee of Complete Rent-alls.

Just more than one hour after the plane went down, emergency medical personnel came to the conclusion that there were no survivors. The emergency response was told to stand down. But despite the stand down orders the response to the disaster continued to build, largely as a result of complications associated with the cleanup. Fuel from the DC-8 drained into Gander Lake, the town's water supply source.

There were other problems: a fire that burned for 21 hours after the plane crashed, the recovery of

bodies, the lack of plumbing on the site, and the investigation into the crash. A temporary morgue had to be set up. Autopsies had to be performed -- the question of where the autopsies were to be performed moved in to tell the world about the tragedy.

Gander, the aviation town, became enveloped by the crash. Taxis, rental cars and hotels were stretched to their capacity. Local firefighters and military personnel spent three days at the site, by now a smoldering, acrid cemetery.

Eleven hundred people jammed a town memorial service the Sunday after the crash. With most of the town's work force connected one way or another to the airport, and with the town's fire department, base personnel, hospital and works department all involved in the response, the crash affected most families in the community. Seen in a broader perspective, the crash seemed to threaten the airport, or more accurately, the town itself.

And there were nightmares. For a town that lives and dies with aviation, the enormity and pungency of death wrought by the crash were hard to deal with. Many suffered emotional difficulties when the reality of what happened began to sink in. And for some, it brought back vivid memories of the earlier crashes. When a nurse first drove past the crash site, for example, her first thought was of the many burn victims from the Czechoslovakian crash.

THE PLANS

INTRODUCTION

Gander was ready for an emergency. The tower, the RCMP, the airport, CFB Gander, the hospital, the telephone company, the town fire department and the Area Control Centre (ACC), all had some sort of emergency plan.

The preparations went even further. The current airport manager had made it his custom to activate the airport command post (the Emergency Co-ordination Centre) each time there was word of an airport-related incident, such as a plane with a possible fire or one coming in because of a bomb threat.

Those who normally staff the Emergency Co-ordination Centre - airport operations, airport security, the airlines representative, the RCMP superintendent and the base commander, are used to meeting at the Emergency Co-ordination Centre and working together. Most importantly their plans interlock. The RCMP plan, for example, assumes RCMP to be in charge at the site and that the off-site Emergency Co-ordination Centre will be directed by the airport manager. The airport plan assumes that the airport Crash Fire Rescue crew will take immediate control at the site of an incident, and that it will then be handed over to the RCMP once they are on hand. Both plans assumes that the Emergency Co-ordination Centre will be directed by the airport manager. The military plan, which outlines its role as one of assistance to the other federal departments, fits into both plans.

Not only was Gander prepared with co-ordinated emergency plans, but it had also exercised them regularly. A major disaster simulation had been held on November 15, 1985, only 27 days before the crash.

Gander had one other thing going for it: experience. A number of people still living in the community had been involved in the earlier incidents -- the Belgian and Czechoslovakian air crashes. The town fire chief, for example, had been on one of the first airport fire vehicles to respond to the Czechoslovakian crash.

The experience extended beyond Gander. One of the RCMP officers had been heavily involved in the response to the sinking of the off-shore oil platform Ocean Ranger.

As earlier ECRU studies have shown, the best possible way to prepare for emergencies is with experience plus planning. Gander was one of those rare places with both.

THE TOWER PLAN

The airport tower has two procedures for a crisis, one for incidents at the airport and one for incidents away from the airport. For the former, the tower sounds the crash alarm to activate the crash and fire rescue, and uses a hotline to call the RCMP airport detachment. It also calls the hospital. Then, because an incident on airport property falls under tower control, the tower takes effective charge of the immediate response. It must control vehicle access to the site and any aircraft movement that may be necessary. If, for example, a plane is on fire and likely to explode, the tower has to clear equipment access to the scene and direct other traffic away from the danger area. It may also have to ask that incoming flights be diverted.

Once the response is under way, site control shifts to the airport fire chief and to the RCMP. The RCMP maintains responsibility if the incident involves death, or if it appears a crime may have been committed.

The initial response to an incident off airport lands is somewhat different. The tower notifies both Crash Fire Rescue and the RCMP by telephone and relays what has happened. While the tower is still involved in any response requiring the movement of vehicles on airport property, it has no further role to play if the response remains off the airport unless Crash Fire Rescue equipment leaves the airport. Then because such movement changes the airport's status, some incoming flights have to be warned that they cannot be accepted unless they assume a risk. (An airport must have a specified crash fire rescue capacity to receive certain types of flights.)

Whether a crash is on airport property or not, the tower follows up its initial response by calling a number of other agencies: the Area Control Centre, CFB Gander for Search and Rescue and when a military aircraft is involved, the tower manager (he must come in to ensure all is well and that all tapes are seized), Terra Nova Telephone, the local telephone company, which in an emergency notifies a number of agencies

and personnel, such as the town officials; and Environment Canada, which collect weather data immediately following a crash.

THE AREA CONTROL CENTRE PLAN

The Area Control Centre at the airport, some distance from the main terminal, also has a plan. If an incident involving a plane occurs away from the airport, it, rather than the tower becomes the main alerting agency. It follows much the same alert procedures as the tower, notifying the RCMP, CFB Gander the Canadian Aviation Safety Board, Environment Canada and the tower. If the crash is reported by the tower an Area Control Centre officer checks to ensure all proper notifications have been made. This guarantees that an upset tower operator will not overlook some crucial calls.

The Area Control Centre deals with affected traffic and with maintenance checks. It is also responsible for immediately ensuring that all navigational aids are in working order. The Area Control Centre plan also calls for maintenance vehicles -- all are radio-despatched station wagons -- to stay in touch in case they are needed as ambulances.

THE RCMP PLAN

The RCMP plan deals with both airport-related incidents and others. The plan at the Gander subdivision is the same as those at other RCMP units in Newfoundland. Gander was quite active in developing the Newfoundland RCMP plan. While it deals with all emergencies, it includes modifications for emergency situations that may arise at Gander International Airport, specifically for incidents such as bomb threats, hijackings, and aircraft crashes. The plan co-ordinates the overall on-site operations of all emergency response units, including Transport Canada, fire, and military personnel.

In the event of an aircraft crash, all relevant information about the crash is recorded. Weather conditions are also noted so that appropriate clothing and footwear can be worn. Immediately afterwards, the "fan out" begins. The number of RCMP called in depends on the percentage of mobilization that the on-site commander requests, either 10, 30, 50, 75 or 100 per cent. In Gander, a 30 per cent mobilization activates about 60 RCMP officers from Central Newfoundland. The

on-site commander can change the number mobilized if conditions later warrant it. All responding members report to the Gander detachment office for assignment.

The superintendent at Gander subdivision reports to the Emergency Co-ordination Centre, while the officer designated the on-site commander reports to the site and then takes charge of personnel and operations. The officer in charge of the administration of RCMP resources works out of subdivision headquarters and is responsible for obtaining and despatching equipment and other resources where needed.

The RCMP plan has four response stages. Each must be fully completed before the next begins. First is the immediate action stage, which requires the police to: cordon off the disaster area and establish control of traffic routes around the site; establish a restricted ("frozen") area by setting up an outer perimeter; establish a rescue, first-aid and casualty clearing station; and keep all non-essential people, including other police officers, from the frozen area.

As this initial stage is being activated, Crash Fire Rescue personnel at the airport are responsible for traffic, crowd control, and the cordon around the crash site. When the RCMP on-site commander arrives and establishes a command post, the Crash Fire Rescue supervisor relinquishes overall command responsibility.

The organizational stage, which commences after all objectives have been met in the initial stage, requires the RCMP to establish a command post, set up a temporary morgue and hold an executive meeting to determine broad objectives and responsibilities, and to lay out a survey grid. (A grid divides the entire area into smaller plots which are clearly marked, usually by stakes and ropes.)

In stage three, the investigation stage, bodies are removed to the temporary morgue and investigations to identify the dead and notify next of kin are conducted. This stage also includes co-operation with other investigating agencies.

The final, or administration stage, requires the RCMP to prepare full reports of the incident, give evidence or testimony at inquiries, and hold any inquiry proceedings necessary in accordance with the wishes of the Minister of Justice.

The plan also contains a list of the names and telephone numbers of interpreters in the event of a foreign plane crash, and a comprehensive list of every business and service in Gander, with the type of resources it provides. A complete inventory of the RCMP's own emergency equipment and resources, including those at nearby detachments, is also listed.

THE TRANSPORT CANADA PLAN

The Transport Canada plan involves three major areas of response which are virtually the same for air crashes both on and off airport property.

The Crash Fire Rescue unit responds immediately if a crash occurs on airport lands. It must decide whether or not to respond if a crash occurs off airport lands. Such a decision is necessary because response by the Crash Fire Rescue vehicles changes the airport's status and ability to continue operations. Once it responds, the same plan for incidents on and off airport lands is followed. It takes control and notifies the tower about what must be done. The tower then completes its notification procedure.

The Crash Fire Rescue supervisor retains site command until the airport fire chief arrives. The fire chief stays in charge acting as Transport Canada's chief person on-site, even after he passes on command to the RCMP's designated site commander. He also acts as an assistant to the RCMP site commander and provides a communications link between the site and the airport tower and/or the Emergency Co-ordination Centre.

If a hazard exists or arises in the emergency area, the RCMP will take into account advice given by the fire chief, even if this means restricting access to the actual impact area to those directed there by the chief. Overall control of the site however, even if a fire is still burning, resides with the RCMP.

While the Crash Fire Rescue crew is establishing on-site control, the duty manager -- or airport manager if he is on duty -- opens the Emergency Co-ordination Centre, a special room in the restricted section of the airport equipped as an airport off-site command post. The room contains: a horseshoe-shaped table; seats for the airport manager and personnel from operations, security, the airline, the RCMP, CFB Gander and a scribe; telephones; Transport Canada and RCMP radios; two clocks for local and Greenwich Mean Time;

a wall board so flight data can be recorded; and tape-recording capacity so that Emergency Co-ordination Centre activities can be taped.

The first person in the Emergency Co-ordination Centre calls the other personnel, notifying them to respond to the Emergency Co-ordination Centre or elsewhere. While the Emergency Co-ordination Centre is being set up, another airport officer establishes a resource centre elsewhere at the airport, ideally at the fire hall where airport staff can be kept on stand-by. The fire hall is ideal because access is restricted, allowing personnel to work freely from public and press interference. Once the Emergency Co-ordination Centre is rolling, calls are to be made to the hospital, the town fire department, regional headquarters and, if necessary, to tenants on airport property.

On the day of the crash, airport personnel made some calls to tenants, since a number of cottages are located near the crash site, to ensure they were not affected by the crash. Among them was a call to the former airport manager. (None were there at the time).

THE MILITARY PLAN

CFB Gander, located right next to the airport, also has a plan. Once it is notified of an emergency -- usually this means a call either to the main switchboard or, during off-hours, to the Data Management Control Centre -- notification goes first to the base commander, then on his approval, to all units on the base.

CFB Gander's emergency response plan is normally activated in two stages. First, personnel are called in to their normal area of work, through the use of an elaborate and continually tested telephone fan out system. Second, some of these personnel are formed into a military unit called the Base Defence Force This response group can be armed or unarmed, depending on the circumstances.

The base command structure calls for a Base Defence Force commander and an on-site commander. The military site commander's function is to control all military elements on the site and to report to the base's command post, staffed by representatives from all parts of the base. In the case of an airport

incident a representative, usually the Base Commander, reports to the airport Emergency Co-ordination Centre.

THE HOSPITAL PLAN

The hospital, an essential part of any emergency response, activates its response by having the senior person on duty -- usually a nurse -- check with the administrator. Upon approval, the senior person uses a detailed telephone fan out system (similar to the one at CFB Gander) to call in the staff. As the call-out proceeds, designated personnel take over perimeter security to keep traffic routes open for emergency vehicles, set up a command post, and prepare to go to any accident site as a sorting or triage unit. While these activities proceed, patients are checked to see if any can be discharged to clear the way for accident victims. The hospital also notifies ham radio operators who can be despatched to the site to provide a communications link between the hospital and the site. As soon as an emergency is called, hospital activities cease, except for emergency cases.

THE TERRA NOVA TELEPHONE PLAN

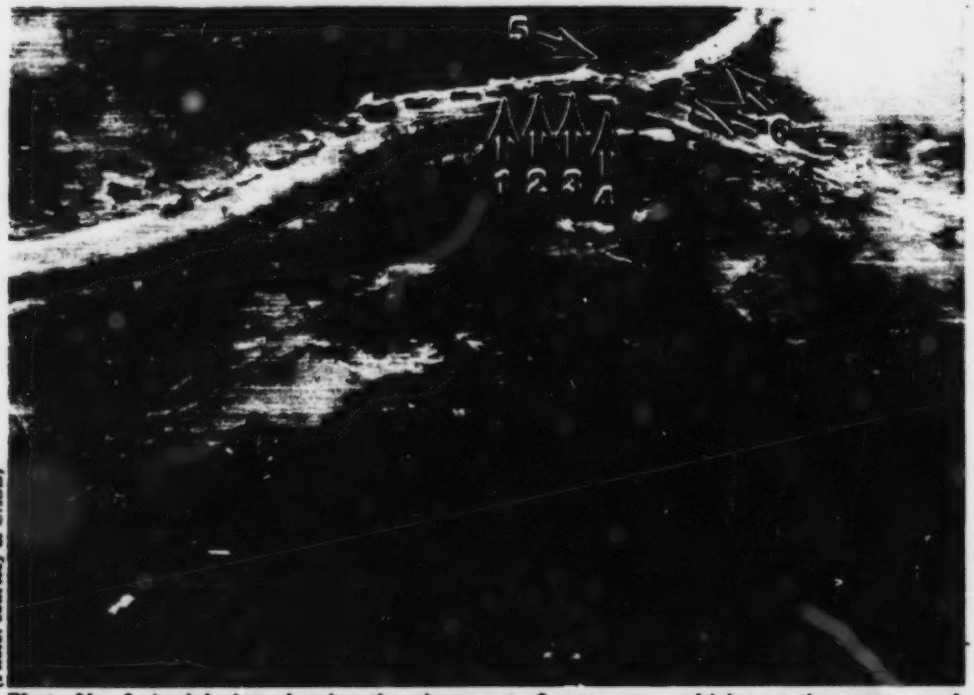
The telephone company's plan calls for the operator on duty to assist the airport, in the event of an emergency by calling a number of persons and agencies in the town. These include the municipal officials, social services, and the town's fire department.

Terra Nova Telephone (TNT) is not supposed to ask these agencies to respond -- that is up to the airport and/or the RCMP. They merely notify them that a problem has arisen. When TNT calls the fire department for example, it is to speak to the fire chief and not to the person on the fire phone who activates members of the department. It is the chief's responsibility to notify town fire personnel.

THE TOWN FIRE DEPARTMENT PLAN

The town fire department's main response plan is for all types of fires. The fire phone is staffed, 24 hours a day, by the front desk personnel at the Holiday Inn. This special phone is linked to the home telephones of all town firemen. After receiving an emergency call, the Holiday Inn employee picks up the fire

phone and repeats the emergency message over and over (this sounds like a recording to the firemen picking up their phones) for a minute or so, until the firemen are heard hanging up their phones. Should a call come from the airport, the firemen go to the fire station first, then to the airport where they are directed to the scene of the fire. If the department responds to an out-of-town incident, some firemen remain at the fire hall on standby in case of any other fires or emergencies.



(Photo: courtesy of CASB)

Photo No. 2 Aerial view showing the placement of emergency vehicles on the access road adjacent to the crash site:

1. **Primary On-Site Mobile Command Post**
2. **Transport Canada Mobile Command Post**
3. **Gander Town Fire Hall Vehicle**
4. **Airport Crash Fire Rescue Chief Vehicle**
5. **Operations Tent Area**
6. **Ambulances**

THE FIRST RESPONSE

INTRODUCTION

The first response to the incident went almost according to plans. The crash occurred right after take-off. The tower immediately became aware of this. The operator on duty reacted according to the tower plan. Since the crash was off airport property, although on federal lands, he did not activate the crash alarm. He used the hot-line to call both Crash Fire Rescue and the airport detachment of the RCMP. He then made his other calls -- to CFB Gander, to the Area Control Centre and to the Terra Nova Telephone company. He also used his radio to talk to two planes about to land. He asked one of them to circle the crash area so that the location could be pin-pointed.

An operator at the Area Control Centre also noticed that something had gone wrong. His electronic reading never showed an increase in altitude on take-off and then disappeared. His screen did show a blip, presumably the fireball, but then the blip disappeared.

The tower response ran into just two problems. The Terra Nova Telephone operator called back to ask what she should do: she did not know where her check-list was. Eventually the operator decided she had better call the town fire department, using the fire phone instead of the chief's home phone. As a result the fire department responded before it was called by the Emergency Co-ordination Centre. The mistake actually helped. When the airport manager did call the town fire department,he discovered they were already en route. His request, that they go directly to the crash site instead of the airport, was re-directed to the town chief by radio. One unit went to the site via the airport while the other cut down and approached the site along the Trans-Canada Highway.

The second problem was initially more serious. Until the tower operator talked to the EPA pilot, he did not know where the crash site was. He had to tell those who were notified that a plane had gone down within an eight-kilometre radius of Gander Lake.

The airport Crash Fire Rescue shift supervisor decided it would be unwise to respond given only this information. If he left the airport he would reduce the ability to handle other flights. One of the fire-men phoned the fire chief at home to notify him of the crash. After a few minutes, the supervisor decided to head to the end of runway 2204, a trip that proved somewhat perilous.

The taxi-ways were extremely icy and one vehicle skidded out of control. At the 13-minute mark, after the incoming plane had spotted the crash site, the Crash Fire Rescue vehicles left the main airport property, crossed the Trans-Canada Highway and started slowly down an icy dirt road toward the crash. The first formal on-site response was under way.

Meanwhile, other agencies started to gear up as well. The RCMP officer who answered the hotline immediately radioed an officer in a car. Before he could give that officer any instructions, the detachment commander who had seen the fireball and had overheard the radio message, told the officer to pick him up at home and take him to the detachment.

While they were en route, the officer at the airport started tracking down the duty manager. Unable to reach him by telephone, he called the commissionaire at the check-point in the international lounge. The commissionaire radioed a colleague who happened to be standing next to, and talking with, the duty manager.

Overhearing that message the duty manager ran upstairs to the RCMP office, where he was informed of the crash. He knew which plane it was. Just minutes before he had said goodbye to each of the 248 soldiers as they headed back to the plane from the lounge, the gift shops and the telephones. He could recall many of the faces, and even remembered that three of the soldiers were women. He hesitated at his own office door for a minute, then recalled his orders and went quickly to the Emergency Co-ordination Centre. As he entered he could see the Crash Fire Rescuecrews starting out. Picking up the checklist he called the airport manager at home and then the operations chief. The response at the Emergency Co-ordination Centre was under way. The duty manager had made his first call at approximately 0655 hours.

Once he reached the airport, the RCMP staff sergeant alerted the hospital, which activated a complete personnel fan-out. While that was going on, the hospital's ambulance driver persuaded the nurse to check with the Emergency Co-ordination Centre to see if he was wanted on-site. He was. Once he arrived he was able to send regular reports over his mobile telephone to the hospital.

The call from the tower to the base also triggered an immediate response. The base commander

ordered a complete base recall. Even before that a military policeman, having seen the fireball, responded. Finally, the call to the town fire department, as is customary, also alerted the town police. Gander is policed by a small three-member municipal department and a municipal detachment of the RCMP. Two town policemen went to the site. One joined the on-site search. The other set up a perimeter point on the Trans-Canada Highway at the foot of Burner Hill.

All this meant a build-up of personnel and equipment at the site. It started with some passers-by. Then came the Crash Fire Rescue fire crews who dumped dry chemicals and foam on the main fire where 133 bodies were buried, and who made the first attempts to search the site. Then followed the first military personnel who also searched the site. The first RCMP officers searched too. One officer kept calling out that the police were on hand. There was no answer. Finally, both town firemen and Search and Rescue personnel conducted searches of the crash area, 300 metres long and 50 metres wide. They found wreckage, many fires, and an overwhelming number of charred bodies, but no survivors.

By then the fire chief had established a radio link with the Emergency Co-ordination Centre. Reports going to the airport and to the hospital over the ambulance radio were "no survivors."

Activity at the scene changed. The firemen began to deal more extensively with the fire. The police started to concentrate on perimeter control. The Search and Rescue personnel left as there was nothing for them to do.

A medical team arrived from the hospital just as the last two searches were over. They, too, determined there were no survivors. The first response, all of it geared to the possibility of survivors, was over. It was now a question of putting out the fires, establishing a perimeter and a grid, picking up the bodies and trying to determine the cause of the crash.

Before the search ended two more attempts were made to find survivors. The RCMP helicopter checked out the perimeter (by this time there was enough light) and RCMP dogs went through the area just in case someone was hidden in the wooded section that surrounded the crash site. Again, no survivors were located.

Although the initial response period was now over, one problem bothered both the military and the RCMP. The soldiers on the crashed airplane had been military combat personnel and had been armed. Their weapons were scattered about the crash site, some apparently in working order. There were also shell casings and ammunition. The military personnel were concerned that someone would steal a weapon or discharge it by accident. The RCMP were equally concerned. Both felt it would be wise to collect the weapons and take them to a secure location.

The two RCMP officers and the two military policemen (MPs) who had been searching the site together, decided to ask the site commander about the weapons. One of the officers radioed the RCMP on-site commander, who agreed with the request to gather the weapons. One of the MPs returned to the base where he gathered some tape to cordon off an area on the site. The weapons, which included M16 rifles, grenade launchers, automatic pistols and 38 calibre pistols, were gathered and placed in this area and guarded by an MP. Later it was learned the explosions were caused by hydraulic cylinders from inside the plane, and not by ammunition, and that the large shell cases were souvenirs of exploded shells brought back by some of the soldiers.

Once the weapons had been moved they were no longer useful for body identification. In the United States, as in Canada, all weapons are assigned by serial number to an individual soldier. It is possible that if the weapons had been tagged and the spot where they were found marked, that this might have assisted in body identification. The bodies were eventually identified and all the recovered weapons tied to their owners.

THE EMERGENCY CO-ORDINATION CENTRE

For the first few hours the Emergency Co-ordination Centre (ECC) was extremely busy. Staff briefed the Pentagon, the airline and its own offices in the Maritime Region and in Ottawa. There were endless dealings with the media.

The Emergency Co-ordination Centre telephone number had been passed out to some media representatives and, for several hours, it was plagued with media calls. The manager gave interviews to the CBC and to the local radio station in Grand Falls but,

after a while, told callers he was too busy to provide information. As soon as the regional information officer arrived from Halifax on a Search and Rescue helicopter, the airport manager briefed him and referred all calls to him. Before this, however, the manager left the Emergency Co-ordination Centre briefly to speak with the media at the airport. He promised they would be able to make a quick visit to the crash site. He then arranged to have one of the duty managers take the media to the site in an airport vehicle. This decision caused the one serious clash between the Emergency Co-ordination Centre and the RCMP on-site. The media visit had not been discussed with the RCMP on-site commander. He told them to leave and complained to the Emergency Co-ordination Centre. Because of this objection a planned second media site visit was cancelled. While the RCMP did arrange some media overflights that first day, the remainder were not able to visit the site until the following day. (See the chapter entitled "The Media".)

As the response built up, the Emergency Co-ordination Centre became the main focal point for requests from the site for information and supplies. Sometimes these were simply passed along to Transport Canada staff assembling at the airport fire hall. Transport Canada staff at the Emergency Co-ordination Centre did the work themselves. When the site commander wanted lighting, the Emergency Co-ordination Centre called around and found several sources, including a local firm. When he wanted wanted hot coffee and food, the Emergency Co-ordination Centre got the provincial social service director to obtain them from McDonalds and Tim Horton's, who in turn, recruited Canada Manpower staff to help with the pick-up and delivery.

Sometimes the problems were resolved by discussions among the three key persons in the Emergency Co-ordination Centre: the airport manager, the RCMP superintendent and the base commander. Since many of the calls from the site came in over the Transport Canada radio, the requests for help could be heard by all in the room. Usually someone there would say he could take care of it. The only debate, if there was one, was: who would help? The military, for example, provided vehicles to move bodies and transport officials from the air investigation agency (the Canadian Aviation Safety Board), and personnel to staff the perimeter and search the runway and the bush for possible debris. The Emergency Co-ordination Centre found everything that was requested.

There were just one or two problems. When a staff member used the Emergency Co-ordination Centre phone line to order soft drinks for the staff at the temporary morgue, the airport manager was somewhat annoyed. He thought the line should be saved for more important calls. The drinks, however, were promptly delivered.

Earlier in the day another problem arose when the president of the amateur radio club tried to convince the airport manager to allow a ham radio in the Emergency Co-ordination Centre. The request was refused on the basis that an additional person in the Emergency Co-ordination Centre was not required, and because there was a perceived danger of radio calls being monitored. The airport manager received similar requests from Emergency Preparedness Canada in Ottawa and from the Pentagon in Washington. He refused both of them. The result was frustration on the part of the ham operators who had to use the telephone to relay messages from the Canadian government, the Pentagon, the Federal Aviation Agency in Washington and Georgia, to the Emergency Co-ordination Centre.

Though the decision to keep amateur radio operators out of the Emergency Co-ordination Centre was controversial, the airport manager was concerned that the addition of a ham radio would add to the noise and crowding in the room. In addition to those on regular duty at the Emergency Co-ordination Centre, there were other regular visitors: the tower manager, the deputy mayor, the hospital administrator, the medical officer from the hospital, provincial social services, public information personnel and representatives from the Canadian Aviation Safety Board. To the airport manager this was more than enough. Since the Emergency Co-ordination Centre already had good communications with the site, and since the amateur operators would not have linked the Emergency Co-ordination Centre to the site but to Ottawa and elsewhere, he felt they would have added to the pressure.

At 1147 hours, Thursday, the amateur radio operators in Gander established contact with Emergency Preparedness Canada in Ottawa, and at 1255 hours with Washington, DC. A ham-radio link was not established with Georgia until Friday at 0826 hours. When it came to relaying messages to the Emergency Co-ordination Centre by phone, the lines were often out of order. The message did not get through for an hour when Transport Canada officials requested an update on the situation from the airport manager.

During the day many decisions were made, sometimes by the airport manager, and sometimes by the airport manager in consultation with the RCMP. The base commander assisted in carrying out decisions, but left decision-making to Transport Canada and the RCMP. For example, a decision was made to tell the EPA flight it could leave if it wished, but that it could not be given clearance because the Crash Fire Rescue vehicles were away from the airport. The pilot decided to wait.

Although the Emergency Co-ordination Centre was the main focal point for requests from the site, most agencies also used their own communication systems to obtain supplies from their personnel. The RCMP used its radio link to subdivisions to obtain their supplies The hospital used the ham-radio operators, to ask the hospital for more physicians and more tags for the dead. The airport fire chief asked the town fire chief to relay a message, asking that base volunteer firemen report to the site. The military police referred their concerns to the base command post. They, in turn, passed along problems deserving the Base Commander's attention, to the Emergency Co-ordination Centre. On one occasion the military, asked to attend to the toxic spill, checked it out and then asked the town Public Works personnel to deal with it.

Occasionally, the Emergency Co-ordination Centre had visitors who needed to talk to someone there. For example, two RCMP sergeants came in to talk with the RCMP superintendent; the acting administrator and a staff physician from the hospital came in to discuss arrangements concerning the tagging of bodies at the site, and to set up the morgue. The Transport Canada media relations officer came in to keep himself up-to-date so he could brief the press. The deputy mayor, (the mayor was away at a meeting in St. John's) responded first to the airport press room. When she heard an RCMP spokesperson mention his concerns about a fuel spill in Gander Lake, the town's water supply, she became frustrated about not being in the Emergency Co-ordination Centre. Her worry was not just fuel, but also other toxic substances. It was quite possible that toxic substances on the plane could flow into the lake damaging the water supply. That might mean evacuating the hospital and virtually shutting down the town.

The deputy mayor finally asked to be taken to the Emergency Co-ordination Centre. Once there, she asked a series of questions. Although the Emergency Co-ordination Centre had not kept her informed, they

did have everything under control. The small spill would be taken care of and there were no toxic substances on the plane. Satisfied, but still concerned, she remained at the Emergency Co-ordination Centre and offered help when needed. She managed, for example, to locate one of the surveyors who surveyed the site (he was hired by the town and loaned to the airport). She also provided help in making decisions about a proper location for a temporary morgue (she is an experienced public health nurse) and acted as a link to the town hall when the need arose.

Another visitor to the Emergency Co-ordination Centre was the tower manager who came in to check if there were any tower problems. He stayed for an hour. It was decided that the air space over the crash site should be controlled, and that runway 0927 should be closed so space could be made for the unusual number of planes. The traffic was so heavy at Gander that day (military aircraft, press charters, fire traffic on the taxi-ways and the runways), that the tower brought in a third person to deal with the activity.

The Emergency Co-ordination Centre was a pressure-packed place but, despite all the tension and activity, conflicts were rare. The RCMP superintendent focussed on the needs at the site. The airport manager paid more attention to the demands from elsewhere and the need to get airport resources into action. The base commander concentrated on making sure that his staff were ready when needed. He also acted as a link with the United States military. All three worked together smoothly, each assisting the other any time assistance was required. The only real dispute centered on whether or not the media should have been allowed on the site, and the only problem concerned the confusion over body bags.

There were, however, two other difficulties. The tape designed to keep a record of all radio and phone calls, to and from the room, did not work for the first hour. Also, the local-time clock was broken, which kept everyone slightly confused about the time until the security chief took it down.

When the Canadian Aviation Safety Board (CASB) arrived, the Emergency Co-ordination Centre assumed a slightly different function. It became the link between the site and the Canadian Aviation Safety Board, who occupied the the Distinguished Visitors Lounge, one floor away.

The Canadian Aviation Safety Board communicated with the Emergency Co-ordination Centre via an RCMP RCMP radio, but still kept a hold on what was going on. All persons who wished access to the site, unless they were RCMP or military in uniform and on assignment, had to clear their plans with the Emergency Co-ordination Centre. The Centre would then contact the on-site commander and tell him who was coming out, and why. The commander, in turn, would clear the visitor when the person checked in with officers at the perimeter access on the Trans-Canada Highway. Although the Emergency Co-ordination Centre determined who was allowed access to the site, and why, the on-site RCMP commander still made the final decision.

The three key people in the Emergency Co-ordination Centre, namely the airport manager, the RCMP superintendent and the base commander, were not always present. The airport manager was in and out for various reasons, such as speaking to the media. Each time he left he delegated his responsibilities to another Transport Canada official. The RCMP superintendent also left frequently, sometimes for lengthy discussions with officials from the Canadian Aviation Safety Board, and sometimes to deal with RCMP matters. The base commander was the only one of the three who spent almost all his time at the Emergency Co-ordination Centre. He was the only military person present and left only at the end of each day.

THE JAMES PATON HOSPITAL

The James Paton Hospital organized a massive response to the air crash, a response carefully laid out in their emergency plan.

At 0700 hours, the switchboard operator put a call through, from the RCMP to the emergency department. The department's supervisor was told that a DC-8 had crashed in the vicinity of Gander Lake, that the exact location was uncertain but that it was within an eight-kilometre radius of the Lake, and that about 250 people were on board. She immediately called the switchboard operator and asked her to page the night nursing supervisor who was doing her rounds. Within four minutes the nursing supervisor called her back, and then met her in the emergency department to begin the hospital fan-out.

The fan-out system was initiated at 0705 hours. The night nursing supervisor first called the acting administrator at home, relaying the message received five minutes before. He advised her to call the deputy chief of staff (the chief of staff was away in Alberta) and put the plan into effect, thus activating the hospital's physicians. She called the executive medical director first as she knew he was going away to an out-of-town clinic. As soon as he found out about the crash he cancelled his clinic. The night nursing supervisor then called the deputy chief of staff.

Meanwhile, the emergency supervisor called the hospital's director of nursing and told her to begin calling the triage nurses. There is a list of 20 triage nurses--the first five contacted become members of the triage team that goes to the disaster site. (The triage physicians, all general practitioners, are called by the chief of staff, or in this case, the deputy chief of staff. Triage is a medical term for sorting. In a disaster, victims are usually sorted into three categories: those who are beyond help, those who can wait for help and those who need immediate help.)

While these calls were being made, the hospital was readying itself for an onslaught of casualties. At 0710 hours, an ambulance was despatched to the site at the request of the Emergency Co-ordination Centre, which had dialed the hospital, via the direct line it established after 0653 hours. Ten minutes later, the driver made the first of three reports on the ambulance's mobile telephone. He said the situation looked bleak--there likely were no survivors.

By 0722 hours, according to plan, the director of finance and nursing, and the hospital's acting administrator were preparing the command post in education rooms A and B, on the ground floor of the hospital.

Seven phones were hooked up to the telephone jacks, one of them being the direct line to the Emergency Co-ordination Centre. Once this extension was connected, all incoming Emergency Co-ordination Centre calls were picked up by the command post, leaving emergency free to deal with the expected deluge of casualties.

At about the same time, one of the hospital's two anaesthetists arrived at the hospital. He had been advised of the plane crash via the fan-out and had been

advised of the plane crash via the fan-out and had been requested for duty. He was followed by a general surgeon. They both arrived quickly, because earlier that morning they had worked together in surgery, and had just arrived home when they received their calls. This meant they simply had to jump back into their still warm cars and drive to the hospital. Others had to take up to 10 minutes more to scrape ice from their vehicles' windows.

Once at the hospital, the anaesthetist and general surgeon felt that someone ought to go to the site immediately. The two approached the deputy chief of staff, the medical executive director and the director of nursing with the suggestion that they leave for the site even though their assignment was triage in the hospital's main lobby.

The designated triage doctors had not yet arrived. In addition to the delay caused by ice, the deputy chief of staff had waited until he arrived at the hospital and received more information before beginning to call in the triage doctors. At 0735 hours, unwilling to wait any longer, the anaesthetist and the general surgeon left for the site. The head nurse sent the co-ordinator of triage nurses with them.

While this was going on, two nurses were preparing the triage kits by checking the supplies of intravenous fluid and pulling out the identification vests the triage team was to wear at the site. Meanwhile, the hospital stopped its regular operations and assigned personnel to halt the flow of patients coming in for appointments with doctors. (In an emergency the two road entrances are controlled by two guards instructed to turn away all cars and tell patients that their clinical appointments have been cancelled.)

The RCMP had also despatched an officer to the hospital. He remained at the hospital entrance for an hour, then left when the hospital was taken off its alert. He would have provided traffic control duties as well as an additional communication link to the site.

The RCMP also planned to block the Trans-Canada Highway, if necessary, to provide a direct link from the site to the hospital which was just off the highway minutes away from the crash site. According to the hospital plan, the casualties would be taken to the main lobby, where they would be sorted by the triage

doctors and nurses. The normal emergency entrance would be closed.

The triage area was being assembled: stretchers were being brought up, and medical dressings and supplies were ready. The nursing supervisors of each ward checked to see which patients could be discharged, and noted the information. At 0745 hours, this data was sent to the hospital command post where it was charted on a board. A nurse and a physician, assigned by the command post, decided who would be discharged. Discharged patients would be transferred to the physiotherapy department, where they would then be taken to the Gander District Vocational School (the cafeteria of the school would serve as a casualty clearing point). Although everything was ready, patients were not actually discharged because the hospital had not received word that there were survivors.

The official triage team was now assembled and waiting for a call from the Emergency Co-ordination Centre requesting its presence at the site. The call came from the airport manager at 0750 hours, and the unit left for the site in two private vehicles. While they were en route, the unofficial unit which by now was on-site, completed an examination of the victims and concluded there were no survivors. At 0806 hours, the anaesthetist instructed an RCMP officer to tell the hospital to stand down. The message arrived at 0808 hours. It was relayed from the RCMP on-site to the RCMP at the Emergency Co-ordination Centre, and from the Emergency Co-ordination Centre to the hospital. But the official triage unit had left just before word reached the hospital. Upon arrival at the site, its members were told by an RCMP officer that they could not proceed down to the site as more doctors were not needed.

At 0810 hours, the two doctors and nurse on the unofficial triage unit drove up the hill and met the official team at the Trans-Canada Highway with the message, "there is nothing down there." They then returned to the hospital. The acting administrator asked the switchboard to announce over the hospital's PA system that the emergency plan was now called off and that normal routine would resume. As far as the hospital itself was concerned the crisis was over. Doctors waiting in the command post were told they were not needed anymore. Triage preparations in the lobbies and the various wards were dismantled, and night staff who had stayed on to help were told to go home.

Although ambulances from neighbouring communities had not been called for assistance, the command post would not have had trouble getting help as several offers came over the command post telephones. One of the first calls received was from the Grace Memorial Hospital in St. John's, which phoned to let administration know that help was ready and available.

Minutes after the plan was called off, the Emergency Co-ordination Centre asked the acting administrator and medial director of the hospital to go to the airport headquarters to discuss the logistics of the body tagging and the establishment of a temporary morgue at the airport. An airport duty manager was despatched to the hospital as an official escort.

The hospital response went well, except for three problems. First, as a result of a mix-up, the amateur radio operators were not on the site (for site to hospital communications) until long after any possibility of triage was over. They did, however, tour the site later with those who tagged the dead bodies. Second, hospital perimeter security did not work as planned. Those at the road allowed staff to come in off the highway to drop off passengers. If there had been casualties some of the traffic would have overlapped. And third, there was the activity of the unofficial triage team. This problem occurred partly because the deputy chief of staff delayed calling the regular triage team until he checked things out at the hospital.

THE MILITARY RESPONSE

Canadian Forces Base Gander was first alerted to the air disaster by a phone call from the airport control tower at 0650 hours. The call was answered by one of the two Data Management Control Centre (DMCC) operators. (They are responsible for incoming calls during off-hours.)

Immediately after the tower call, one of the two operators phoned the base commander at home. He instructed the operator to initiate the base recall, which is a fan-out system that instructs military personnel to report to their normal place of work on the base and to stand by for further activity.

The two operators started phoning. On their list were: the officer in charge of the 226 Radar Squadron, the 770 Communications Research Squadron, the

Search and Rescue Unit 103, the Base Administration Officer (B Adm O), who in time of crisis becomes the head of security, and the Military Police.

The operators encountered a few delays. The Commanding Officer of 226 Radar Squadron was in St. John's. The second officer was also away. Similarly, the commanding officer of the rescue unit was in Goose Bay and the second officer was on his way to Halifax. The Data Management Control Centre operators did, however, reach the third officer of each section, who set their respective fan out systems into motion.

Meanwhile, the base commander and the B Adm O headed for the base. They arrived at 0705 hours and met in the parking lot. The base commander told the B Adm O (who is also in charge of setting up the base's command post) to call the Base Defence Force, but without weapons. This would give the military a well organized, tightly controlled response capacity.

The Base Defence Force (BDF) is an emergency response group made up of base personnel who are not crucial to keeping the base operating. It can therefore be established without interfering with normal operations. Base Defence Force members report to Base Defence Force headquarters on the base with their response kit (a parka, wind and rain gear, weapons, boots, hats, etc). Since the Base Defence Force was not put on alert until after the initial recall went out, many arrived on base without their kit.

By 0704 hours, the base siren had been sounded to alert people that the base was on recall. From the base's parking lot the base commander drove to the Emergency Co-ordination Centre. At 0715 hours, he entered the domestic section of the airport where he met a cleaner who told him that there were no survivors on the plane. This was the base commander's first information regarding the status of the crash victims. He arrived at the Emergency Co-ordination Centre at 0721 hours.

After talking to the base commander, the B Adm O proceeded to the Data Management Control Centre (DMC), where he picked up the key for the command post located a few doors down the hall. At 0713 hours, he informed the Data Management Control Centre operators that the Base Defence Force was being called in. The operators initiated the Base Defence Force recall/fan-out by placing calls to the base's section heads who, in turn,

announced that all Base Defence Force personnel were to report to Base Defence Force headquarters in the base gymnasium.

By this time, the command post personnel were reporting for duty. At 0715 hours, the first officer to arrive at the command post, the B Adm O, telephoned the two on-site commanders, the Medical Inspection Room personnel (the base's two medics), and the warrant officer in charge of office support.

At 0731 hours, the second person entered the command post and by 0746 hours, all the personnel were there. They included: the base controller and nuclear defence officer, who is also in charge of food services the Medical Inspection Room and the ambulance; two technical services officers, in charge of base supplies base transportation and base construction engineering; and the security officer, who is the second in command to the B Adm O on the security side.

The operations officer for the Search and Rescue Unit 103 -- a 98-person unit designed primarily for marine rescue -- called the command post and reported that the Search and Rescue recall was complete. He was given the Emergency Co-ordination Centre's telephone number and told to speak with the base commander there to dispatch his unit.

The base commander told him to take as many people as he could who were qualified in first aid down to the crash site. Fifteen people and three military vehicles were assembled, and at 0745 hours the operations manager arrived on the site where he reported to the RCMP on-site commander, and where he remained until the on-side commander arrived at 0810 hours. He also organized a search for survivors. This was at least the fourth sweep of the area. The first was conducted by airport personnel, the second by military police, and the third and most thorough, by town firemen.

The fan-out had by now been completed and people were reporting to work. One of the medical aides arrived at the base medical clinic at 0730 hours, and drove the ambulance to the site. The second medical aide arrived on the base. He phoned the Transport building and was told that the ambulance had just left. He then requested a military vehicle to take him and an assistant to the site. The medical aides arrived on the site at 0740 hours and 0800 hours respectively.

The Base Defence Force commander responded to the site (even before the Base Defence Force was fully organized) after he received a call from the base commander to form a perimeter. Twenty-five persons left immediately by bus to set up the perimeter. The base on-site commander also went down to the site with this first bus load and reported to the RCMP on-site commander at 0810 hours.

The bus continued to bring soldiers onto the site, and by 0830 hours an additional 31 had arrived from the base. A total of 56 persons now made up the cordon.

Securing a perimeter was initiated and supervised by the RCMP, although military personnel manned the largest part of it. The access point at the Trans-Canada Highway remained under RCMP control.

The RCMP on-site commander became the eyes and ears of the base command post. The Emergency Co-ordination Centre despatched specific officers and made requests, while the on-site commander remained responsible for reporting all situations and requests originating from the crash site. He controlled all military equipment, personnel and resources on the scene, and requested these as they were needed.

Although CFB Gander was involved as a major participant in the overall disaster response plan, itsnever functioned as a front-row player. It provided support to two other federal departments: Transport Canada and the RCMP. The military's involvement did, however, touch almost every aspect of the response plan.

Minutes after the call to the Military Police gatehouse was made by the Data Management Control Centre operators, a military policeman arrived to provide on-site security for the RCMP. Two additional Military Police officers arrived at the site within a half-hour of the crash.

Under direction of the RCMP, base personnel began to collect, sort and store the weaponry. Base Defence Force personnel also aided the RCMP in loading and transporting the bodies to the temporary morgue. (Personnel were rotated from the perimeter to the site for body removal, then to the base for food and rest.)

The base's two medical aides gave first aid to injured response personnel, and provided disinfectant for those who wanted to clean their hands. Base personnel also assisted the Canadian Aviation Safety Board by sweeping large tracts of land from the runway, to the point of impact.

Personnel from Search and Rescue provided manpower for on-site jobs, such as assisting Environment Canada and town officials in conducting a cleanup of the fuel spill in Gander Lake. A Zodiac boat and an eight-metre cabin cruiser with two outboard engines were brought onto the site. Search and Rescue personnel also brought diving equipment in case it would be needed to install the boom. A tent, lighting, rope, flashlights, respirators, gas masks, food and assorted clothing were also brought in.

Ground transportation, such as a bus for the media tour and for the soldiers travelling between the base and the site, was also provided. Covered military trucks were used to transport the bodies to the temporary morgue. A bomb disposal van and an explosives expert were also sent to the site.

Communications within the military command structure usually flowed by radio from the on-site commander to the base command post, and by phone to the base commander at the Emergency Co-ordination Centre. Requests originating from the Emergency Co-ordination Centre flowed in reverse order. The base command post was responsible for screening information. To cut down on radio traffic, only the Emergency Co-ordination Centre requests directly relevant to the site, were passed on to the on-side commander.

Requests for information and offers of assistance came from Maritime Command Headquarters and Regional Headquarters in Halifax, Air Transport Group Headquarters in Trenton, Fighter Group Headquarters in North Bay, Air Command Headquarters in Winnipeg, and National Defence Headquarters and the National Defence Operations Centre in Ottawa. The command post eventually released regular situation reports.

Visiting military personnel were also looked after by CFB Gander personnel. United States military personnel arrived to settle the question of transporting the dead soldiers' bodies back to the United States The Base Commander temporarily gave up his office on

the base to an American general who would later be accommodated in an office at the airport. Acommodation on the base was also provided for his stay in Gander.

A chaplain from the naval division in Halifax came to Gander of his own volition to be of assistance at the crash site. He spent most of the first day walking along the cordon, talking to the soldiers, and providing them with conversation and solace.

During the crash response, the base was on an alert status. Movement in and out was strictly controlled. Clubs and on-base services normally open, were shut down. Soldiers were warned against talking to the media and divulging information about the crash. The base switchboard was staffed 24 hours a day to handle the deluge of calls from the media, base staff and others. The military continued to provide assistance and personnel at the site, until the on-site commander told his staff to stand down on Saturday, at 1550 hours, about 57 hours after their initial response.

PERIMETER CONTROL

The job of perimeter control was, at the outset, delayed until more personnel arrived at the site. The first form of perimeter control came from the RCMP. The second officer to arrive on the site established a road-block at the top of Boathouse Road where it meets the Trans-Canada Highway. By 0740 hours, road-blocks were set up east and west of the site, approximately one kilometre from Boathouse Road along the Trans-Canada Highway where two Gander police constables assisted with traffic control. Their police cruiser was equipped with a radio (on the same frequency as the Town of Gander Fire Department) and they borrowed an RCMP portable radio to give them contact with the site command post. Only "legitimate" people headed for places east of Gander were allowed through.

As time passed, reporters and curious onlookers lied about their destination in order to catch a glimpse of the crash site -- or what they could see of it -- as they drove along the highway. At one point an RCMP traffic officer, fed up with the number of people "visiting" the Town of Benton, (a small town of 250 residents, east of Gander) told a "Benton-bound" driver "sorry sir, Benton is already full." His strategy worked and the driver turned around immediately and headed back to Gander.

Unauthorized entry was prevented, not just by the checking process but, as mentioned earlier, by soldiers stationed along a crash site perimeter. By 0810 hours, 25 soldiers were spread around the crash site. They were stationed half a kilometre east of Boathouse Road and west to Skipper Road, then down Skipper Road to the shore of Gander Lake. To the east of the crash site, they were stationed along Boathouse Road to the on-site command post, then south-east along the access road to the Rod and Gun Club. They were spaced within seeing distance of each other.

Thirty-one soldiers arrived about 25 minutes later to augment the force and were stationed in between the first 25. Although they had no weapons and no legal power of arrest, their physical presence prevented all but a few determined media and some teenagers, on all-terrain vehicles, from trying to slip off the highway into the woods and through to the actual crash site. (See Map of Crash Site.)

During the 48 hours after the crash, roughly 65 persons and/or agencies visited the site. Some of them were:

Firemen
Policemen
Military personnel
Health personnel
Town Environment
Provincial Environment
Coast Guard
Private contractors
Airport employees
Chaplain
Deputy mayor
A United States general
The media
Social services
Manpower
Salvation Army
National Transportation Safety Board (U.S.)
Federal Aviation Agency (U.S.)
Telephone staff
Forestry personnel
Other policemen with dogs
Helicopter to photograph the site
Ham radio operators
Surveyors
Maintenance crews.

Those wishing access to the site had to check with the RCMP at the point where the first access road joins the Trans-Canada Highway, and then had to wait there until the officers cleared their entry with the on-site commander by radio. All had to be identified and controlled. In the early stages, just about anyone could get to the site providing he or she had a reasonable explanation. Later, most uniformed personnel -- fire, police, military -- were allowed in, but others had to have either a pass or an escort.

In the later stages, site clearance had to be arranged through the off-site emergency control centre, then relayed to the on-site police commander and the perimeter. Sometimes access could be gained easily. Other times, as traffic piled up or access needed to be discussed, visitors had to wait up to 40 minutes.

During the initial stage of any emergency response it is very difficult to control a perimeter. Responders are arriving rapidly and since they are needed to help, only the most stubborn police officer would refuse entry to the site (where a fire is burning fiercely and where there are possible survivors) to a fireman, a fellow policeman, a medic, an ambulance, a physician or a nurse.

Once it is ascertained that there are no survivors, perimeter control can be better organized. Since there is no immediate urgency for someone to gain access to the site, officers on perimeter duty can keep people waiting until clearance is granted by the RCMP on-site commander.

ON-SITE COMMAND STRUCTURE

The emergency response at the crash site was managed by the RCMP. Acting on the RCMP disaster plan, the subdivision's inspector reported to the crash site and assumed the position of on-site commander by 0720 hours. He made all but a handful of decisions about site management, although he consulted and was advised by the Emergency Co-ordination Centre. There was just one major conflict, (mentioned earlier, when the media were allowed on-site without the on-site commander's knowledge), and it was quickly resolved.

There was an array of communications systems available to the on-site commander. He had his own portable RCMP radio that kept him in touch with the RCMP superintendent at the Emergency Co-ordination

Centre, and with his own officers on-site and at the subdivision.

At approximately 0820 hours, Terra Nova Telephone delivered a car equipped with a mobile telephone which allowed direct, two-way communications. The inspector used this phone since the media could easily monitor radio channels. It also gave him a link to the hospital. When he first arrived, he had set up in the airport on-site command van. A problem soon arose when radio traffic began to conflict. The Transport Canada and the RCMP frequencies were too close together on the channels and this caused the radios to black out each other's transmission. As a result, the RCMP on-site commander ordered the explosives disposal unit van, which was equipped with an RCMP radio, to the site. It was about four metres away from the airport van and the problem was thus alleviated. The inspector was able to maintain contact with both the communications man inside the bomb disposal van, and with the airport fire chief in the airport van. Terra Nova Telephone later brought a second vehicle to the site, but the RCMP sent it back as they did not need it.

Shortly after the airport fire department's early radio difficulties, one other communications problem emerged. At 0815 hours, one of the airport fire chief's links to the Emergency Co-ordination Centre channel one, on the radio, broke down. He used another Transport Canada channel to radio the tower, which in turn radioed the Emergency Co-ordination Centre, instructing them to despatch a communications technician to the command post. By 0837 hours, the radio link to the Emergency Co-ordination Centre had been restored.

THE RESPONSE CHANGES

INTRODUCTION

When the emergency agencies mobilized, they were responding to a human emergency, a situation where speed and efficiency were needed to save lives. With the formal pronouncement by the triage team that there were no survivors, the response changed. Agencies began responding to a tragedy.

The response continued to build. There was a fire to put out. A grid had to be established to mark the placement of bodies and wreckage. Bodies had to be tagged, a temporary morgue had to be set up, autopsies had to be performed, and the cause of the crash had to be determined. To meet these requirements more and more agencies were called in. Still more were needed to combat complications from the crash. These included the Atlantic Petroleum Agency, the Coast Guard, Municipal Public Works and Forestry.

THE FIRE

The fire was a persistent problem. It took the better part of 21 hours to extinguish the largest fire in the pit. Wreckage -- the two flaming tires pictured in one of the few media snapshots of the wreckage -- had to be extinguished six different times. Also, fires continued to flare up where bodies had been soaking in jet fuel. It took firemen three hours, dragging fire hoses around the site, to extinguish these.

The fire department's efforts were also hampered by flashback fires, fires that creep under a blanket of chemical retardants and spring back to life. The airport fire department had used one truck load of chemical retardants, and four truck loads of foam retardants on the fire, before returning to the airport fire station. However, the main fire continued to burn.

The airport fire chief, who acted as Transport Canada's on-site commander and as the site's overall fire chief, told the town fire chief to organize and direct search parties and to report back immediately if any survivors were found. The town fire chief sent three search parties up the hill, away from the main fire, toward the place where the plane first hit. Each group carried a radio and reported regularly to the chief. The first two groups also carried hand lights. Members of the third group felt they did not need one, but changed their minds and radioed back for one when

they reached the top of the hill. The search teams found debris and occasional parts of bodies, but no survivors. Once at the top of the hill, they turned around and covered another stretch of territory coming back down. Again, no survivors were found and they reported this fact.

Once the search was over, the firemen were ordered to shift to fire fighting. First, they hooked up hose lines to a Transport Canada foam truck, and used its water but not its foam. They then started to draw water from their own pumper. When it became clear they would need a water supply they asked an RCMP constable if they could move debris blocking the road down to the lake. He checked with the airport RCMP detachment commander (now on-site as the deputy site commander) who told them to move the debris carefully.

Later, because of water pressure problems -- the line was running about 300 metres up a steep hill -- the firemen got a Transport Canada pumper and ran two 65-centimetre lines from their pumper. Then they connected four 38-centimetre lines to the Transport Canada pumper, using two on the main fire (the area called the pit), one around the truck itself (there were a lot of spot fires on the road), and one uphill toward the place where the plane first hit. Because it was heavy work, and because many of the men were in survival equipment, the crews were rotated regularly. Part-way through the morning, the town deputy chief who is also CFB Gander's deputy chief, suggested to his chief that a call be made to the base to ask that their volunteers join them on-site. This was done.

The airport and the town began to worry about having equipment away for too long. The Transport Canada site commander, working through the Emergency Co-ordination Centre, arranged for the Forestry Department to bring in pumps and hoses so water could be brought to the main fire without using the pumpers. By 0910 hours, Forestry had two portable pumps, and 120 metres of a 38-centimetre hose on-site along with two people to maintain the pumps. At first, the town firemen operated the hoses (Forestry staff operated the pumps but did not service the lines). Later Transport Canada firemen did that job. Working in six-hour shifts they remained at the site until 1700 hours, Friday, December 13th.

The main fire at the southern tip of the crash site was particularly hard to extinguish. Access to it proved difficult. Transport Canada chain-saws were

brought in to clear a path. On Friday morning, 24 hours after the crash, the RCMP realized that the Forestry personnel on-site to operate the pumps would probably be good at operating chain-saws. They asked them if they could assist with the cutting of trees. This did not eliminate the problem. A front-end loader was brought in by Transport Canada but it could not clear all the trees. A local Forestry contractor had the equipment to do a better job. Saturday, a machine, called a tree farmer by loggers, was brought on-site. It had a four-wheel-drive, four huge tractor tires, and a boom arm called a "cherry picker." It was used mainly in the "pit" area where the majority of bodies and the heaviest pieces of fuselage were located.

Taking orders from the on-site commander, the operator also went back over the areas which had already been checked, "just to be sure." It was not easy going. The heavy machine had to manoeuvre around pieces of wreckage and it was discovered at the end of the day that one of the $400 tires had been slashed by sheet metal from the plane. While the cherry picker moved the obstacles, the RCMP and Armed Forces personnel followed along, picking up body parts and putting them in bags. The machine remained on the site until 1700 hours.

The town fire department volunteers had one concern. They received little recognition from anyone for what they had done. Everyone involved from CFB Gander for example, received a personal letter from the U.S. general who had been in Gander, and the town firemen were somewhat hurt that they did not. They felt it would have been nice if someone had written to them.

THE OIL SPILL

When the Arrow Air DC-8 left Gander it was completely loaded with 46,000 kilos of jet fuel. Some of that fuel burned up after impact, but some spilled onto the crash area and trickled down the creek at the bottom end of the site into Gander Lake.

The spill was noticed almost immediately and was mentioned in the early media briefings by the RCMP. It was this information which angered the deputy mayor, and prompted her to demand access to the Emergency Co-ordination Centre so that she could be kept fully informed, not only about the spilled gas, but about other possible toxic substances that might pollute

Gander Lake. Gander gets its water supply from the lake.

Although there appeared to be no immediate danger, the Emergency Co-ordination Centre notified the Gander Public Works Department and Terra Nova Telephone, who passed along the word to the provincial Environment department. By 0800 hours, Gander's Public Works Department was standing by, and by 0910 hours, two provincial Environment officers were at the site waiting for an Atlantic Petroleum Agency (APA) truck to arrive with equipment. The APA has an office at Lewisport, a 30-minutes drive from Gander. The provincial officials had called them as soon as they had heard about the crash.

At 1015 hours, the APA van arrived with a boom, absorbent pads, a five-metre runabout to operate on the lake, and a 40-metre floating dyke. They were escorted to the lake where they began their operations. When they unloaded the boom they discovered that some of its horseshoe-shaped shackles, necessary to connect its various parts, were missing.

Meanwhile, the fuel spill was getting worse. Water from the fire hoses was flushing the spilled gasoline down the hill and into the lake. The Emergency Co-ordination Centre asked CFB Gander to do something about it. A military officer checked the situation, and informed the base that it would be better to have the town Public Works officials respond, as they were better equipped and not as busy. The base did as suggested. Unaware of the emergency of the situation, the Public Works supervisor sent some workmen to a hardware store to collect ordinary mops and sponges, and to find some replacements for APA's missing shackles. Eventually, a Zodiac boat from the military was used to put the boom into the water.

By 1200 hours, 600 metres of boom had been deployed. There was talk of putting out a second separate boom brought in on a second APA truck. When the winds shifted and started blowing the oil towards shore, it was decided a second boom would not be necessary. The operation was successful. The 40-centimetre curtain boom, so heavy that two-thirds of it hung below the water line, trapped the oil as it flowed along the top of the water. In the end, there was a 2,800-metre leeway between the oil slick and the pumphouse (which housed the town's intake valve), so the danger of contamination to the water supply was minimized. The town engineer had also notified the chief regional

health inspector and another Public Works employee. They both went to the pumphouse to monitor the situation and they reported back that there was "no perceived danger" to the town's water supply.

In the afternoon, the on-shore cleanup began. It was a two-stage process. Since an easterly wind blew the flowing oil towards shore, oil absorbing sponges were dropped onto the shoreline and then wrung out into 100-litre drums obtained by the town engineer. This was initially done by the Public Works Department. By 1600 hours, a six-person Coast Guard contingent had arrived to assist the cleanup efforts. They brought one eight-wheel cargo vehicle with them, using it to transport the drums to a storage area near the boathouse.

The second step involved a mini-filtering system. Public Works brought in a backhoe and dug three trenches close to the water's edge so that the contaminated water could flow in. The clean-up was completed by 1300 hours on Saturday, two days after the crash. When the chief regional health inspector went back to the site two weeks later, he did a bacteriological analysis of the water supply and the results proved negative. He later presented a report to the town council.

BODY IDENTIFICATION

While emergency agencies were still trying to control the fire and the oil spill, the grim task of identifying bodies and body parts and marking them had begun. Many, charred beyond recognition, were scattered all over the crash site. Some were still strapped in their seats, their hands brought up to cover a face no longer there. One soldier was found clutching a bible to his chest. Another was wrapped around a tree, still in his seat. The pilot was found near the cockpit wreckage, his hands on the controls. Only a few of the bodies were not disfigured. One victim was found with his body in perfect condition, except for a broken neck.

At 0850 hours, at the request of the RCMP, the hospital's medical director and acting administrator met with the airport manager to discuss the tagging operation and the establishment of a morgue. The first task involved marking each body as officially dead. This had to be done before they could be moved to the morgue. By 0930 hours, the two had returned to the

hospital where a meeting of all available medical staff was organized and held in the command post. Additional volunteers were also requested. The director of laboratory services was made responsible for the morgue. He called the Grand Falls hospital at 1000 hours, requesting that they send down a pathologist and two morgue assistants.

There were four doctors to mark the bodies. The hospital lab team comprised a pathologist (the director of lab services), a phlebotomist, an orthopaedic technologist who doubled as morgue assistant, and a bacteriologist. By 1010 hours, the entire group left for the site in two cars, one driven by the acting administrator, the other by the airport duty manager assigned to accompany the group.

Perimeter control on-site had tightened. The RCMP stopped the two cars entering the site and radioed the Emergency Co-ordination Centre to verify that the occupants had authorization. The doctors were then taken down to the crash site. The lab technicians, accompanied by an official escort, proceeded along Boathouse Road, across the Trans-Canada Highway and along the runway into Hangar 21.

At 1020 hours, the four-member tag team walked around the crash site, spotted the bodies and used international triage tags for marking. The tags had four perforated sections denoting the seriousness of the medical attention required. On this occasion all the tags were torn up to the black section, thus denoting death.

The doctors on-site, each accompanied by an RCMP officer, realized there were too many bodies for them to tag. Four additional doctors were called to the site to assist. They arrived before 1100 hours. Bodies on the periphery of the crash site and near the trees were tagged first as they were easily spotted. As the doctors moved toward the main pit area they found so many bodies were buried under the fuselage that they were difficult to reach. They tagged what they could but it became obvious that they could not dig more without disturbing the debris, and possibly damaging the evidence needed to determine the cause of the crash, so they left at 1230 hours.

During this time the RCMP were setting up a grid at the site. A grid is set up at all air-crash sites. Bodies and debris, scattered over the site, are tagged and numbered according to the grid number in which they

are found. This allows movement of bodies to a temporary morgue, and removal of any other object without disturbing the investigation in progress. The crash site can then be reconstructed once everything is labelled according to the grid, and once the site is surveyed.

They began to mark the grid at the top of the hill, where the fires were already out. The last sections were not marked until Friday morning, when the fire in the pit was extinguished (see map). A total of 108 sections were eventually marked out. The RCMP and the Canadian Aviation Safety Board had arranged for a very careful site survey, using their own personnel and a surveyor hired by the town. The site and later the grid were also carefully aerially photographed.

By 1545 hours, the RCMP identification unit brought in from Grand Falls, was ready to start the next phase of the operation: body retrieval. Five RCMP teams consisting of six members: an identification officer, a scribe, a photographer, an equipment manager and two others, identified the bodies and pieces of bodies.

Each item was tagged by listing the grid it was found in and the team sequence number. Then a copy of the same tag was attached to a stake and wrapped in a plastic bag. The stake was pounded into the ground at the point where the body was found. The RCMP photographer took a picture of the two tags next to each other, and then each body part was placed in a body bag. If a tag could not be attached to a body part, it was dropped into the bag or attached to the bag's zipper. Personal effects found on a body were also dropped into the bag. It was then placed on a stretcher and hauled to a covered truck. Finally, military personnel transported the bodies to the temporary morgue.

Since there were not enough body bags, the bodies were taken out of the bags at the temporary morgue and placed on plastic sheets. The bags were then returned to be re-used without liners. Quite often those on-site would shake human remains out of a body bag. The problem was compounded by the lack of sanitary facilities on-site, and surgical gloves that ripped easily.

With darkness approaching and most of the identification work on-site still left to do, the RCMP needed lighting for the crash site. By 1530 hours,

Transport Canada and municipal workers had lights set up. Public Works personnel and the United States military also provided lighting. Even a local rental outlet was contacted, and two of the firm's employees arrived at about 1900 hours. They set up a generator and a 1,000-watt tower light. Nightfall also created a problem for the photographers. Since they had to use a flash to shoot the tags and since the tags were white, getting a proper exposure was difficult. The identification team finished their work Saturday morning, shortly before a snowstorm hit the area.

THE TEMPORARY MORGUE

Late Thursday morning the temporary morgue went into operation. The lab technicians dropped off at the hangar first created a grid, dividing the hangar into 1 x 2½ metre rectangles.

The Emergency Co-ordination Centre had offered Hangar 21 as a temporary morgue because the hospital could not set one up to accommodate 256 bodies due to lack of adequate space and facilities. Their disaster plan calls for their nearby garage to be cleaned, and used as a temporary morgue during emergencies. The hospital's own morgue contains only two refrigerators.

The lab team, which had begun chalking out the grid, left for lunch with the Grand Falls staff when it arrived at 1130 hours. Upon their return they found that their carefully laid chalk lines had been swept away. The lines were faintly visible, and with the RCMP's help were quickly redrawn.

At 1430 hours the hospital radioed the lab technicians via the hospital command post ham operator, advising them that the first bodies would arrive within three hours. The director of lab services radioed back, and asked if the group could return to the hospital since there was nothing to do but wait in the unheated hangar. The nine technicians and two morgue ham operators returned to the hospital but were back at the temporary morgue within the hour. The hospital command post had received a radio message that six bodies were being delivered to the hangar. It was another 45 minutes before more bodies were delivered but, by midnight, more than 100 bodies had been laid into the rectangles.

The lack of body bags was ot the only supply problem. The temporary morgue ran out of shroud sheets.

sheets. To improvise, plastic was used as a ground sheet and the white shroud sheets were used to cover the bodies laid out on the hangar floor. Because of this, bodies remained frozen. There was little blood around and no strong odour in the morgue. With little blood spilled the danger of infection, particularly hepatitis, was minimal. As hygiene requires, the morgue team wore gloves, masks and caps.

The team left Hangar 21 around 1800 hours Thursday night. The head pathologist was contacted later that same evening by Gander's director of lab services who had been told by the Emergency Co-ordination Centre that autopsies were to begin Friday. The director left the morgue at 2200 hours, Thursday night, when he and a morgue assistant were relieved by two orderlies. They were driven to the James Paton Hospital by their official airport escort.

The RCMP was in charge of the morgue and the body identification process. As the bodies arrived, RCMP officers would collect data to feed into the RCMP's Police Information Retrieval System, a computer program used by police forces throughout Canada. The system allows the police to group information, then cross-reference it instantly. Later, just before the bodies were flown to the United States, a printout of the information under each soldier's name was placed in the appropriate coffin.

Both the identification process and the information retrieval system worked well. Using information from dog tags which had been cleaned off with a toothbrush, and from underwear and other clothing, the RCMP managed to establish the probable identity of more than 70 per cent of the dead soldiers.

THE AUTOPSIES

For a time it appeared that the issue of where the autopsies would be performed would cause a major dispute. The RCMP felt they should be done in Canada. The Canadian Aviation Safety Board argued that, since there were no appropriate facilities in Canada, they should therefore be performed in the United States. The U.S. authorities wanted them done there. The local pathologists, who were not enthusiastic about the enormous task, supported the Canadian Aviation Safety Board, although the hospital's medical director argued that the work should be done in Newfoundland. The matter was referred to provincial and federal Cabinet

Cabinet ministers in St. John's and Ottawa. They decided to back the Canadian Aviation Safety Board, the local doctors, and the request made by the United States. An agreement was signed by the Canadian Aviation Safety Board, the RCMP and the Province of Newfoundland stipulating that the autopsies would be performed at the United States Army Institute of Pathology in Dover, Delaware, under the supervision of the Canadian Aviation Safety Board and the RCMP.

Some of those involved expected the decision to cause a reaction and that the media would ask about Canadian sovereignty. As it turned out, there were no reactions. The United States media, still at Gander, treated the decision as perfectly normal. They had expected all along that the bodies would be shipped to a U.S. site.

The only touchy point arose when it was pointed out that death certificates would have to be issued by a physician licenced to practise in Newfoundland. This was quickly resolved when a U.S. medical doctor was granted a Newfoundland medical licence, which allowed him to practise in Newfoundland. In this way, he could issue the death certificates in Delaware, as a physician licenced to practise in Newfoundland.

On Monday, some bodies were loaded onto a U.S. military aircraft and transported to the United States. An honour guard, flown in from Fort Campbell, Kentucky, met the aircraft when it arrived at Dover Airport Base. The remaining bodies were transported on Tuesday and Wednesday. Only 256 coffins were draped with the U.S. flag. An additional 14 coffins were filled with the remaining body parts. This was noticed by the media in Delaware, and led to some questions when it was discovered that three bodies were missing. They were not found until another search was undertaken one month after the crash.

As part of military tradition, each body was accompanied by a soldier who would stay with it until the burial. At Dover, the procedure for dealing with the bodies was elaborate. First, the remains were filmed and photographed. Then, an attempt was made to locate any identifying material. Since the RCMP had included a computer printout with each body, this process was often already complete. Then each body went through the following process:

- moved to a fingerprint station where the Federal Bureau of Investigation (FBI) specialists attempted to get fingerprints
- taken to a dental station where the jaw was X-rayed, the teeth checked and any dental information noted
- given a complete X-ray and material retrieved for shipment to Canada where it would be analyzed in laboratories
- given a new full dress uniform and released for shipment to the family for burial.

Eventually, the identification of victims was completed and the bodies were released to the families. For religious reasons the only bodies not given an autopsy were two members of the cabin crew.

OTHER AGENCIES

Agencies and people from all over the world came to Gander in response to the tragedy. But, while the initial response was a local one (airport personnel, town and base firemen, RCMP, military, the ambulance, physicians and nurses from the hospital), some also came from some distance away. They included:

- Transport Canada public information officers from Moncton and Halifax
- surveyors from Moncton
- RCMP identification teams from various detachments in central Newfoundland
- an RCMP computer team from St. John's, Nfld
- U.S. military personnel from the Pentagon in Washington, D.C.
- Federal Bureau of Investigation agents from Ottawa and the United States
- Environment personnel from the Province of Newfoundland and from the Atlantic Petroleum Agency, and
- Coast Guard staff.

A regional health inspector came to check Gander Lake for contamination after the fuel spill clean-up was completed. A number of U.S. military officials and U.S. Navy photographers arrived on the site. An army chief of staff toured the crash area. A team of United States morticians, with the motto "You Call, We Haul," arrived to assist the soldiers' return to the U.S. A chaplain from the Canadian Navy visited the site to talk with the people involved about their feelings.

Local residents were also involved in the response to the crash, often in support roles. The Salvation Army parked a truck along the Trans-Canada Highway, directly across from the access road to the site, and spent a total of 50 straight hours serving hot coffee and food to the workers.

Volunteers served coffee and donuts donated by McDonald's and Tim Horton, to the soldiers stationed on perimeter duty along the Trans-Canada Highway. Sandwiches made by Salvation Army members and hot soup from three local hotels were also served. The soldiers, who were not allowed to leave their posts, really appreciated this.

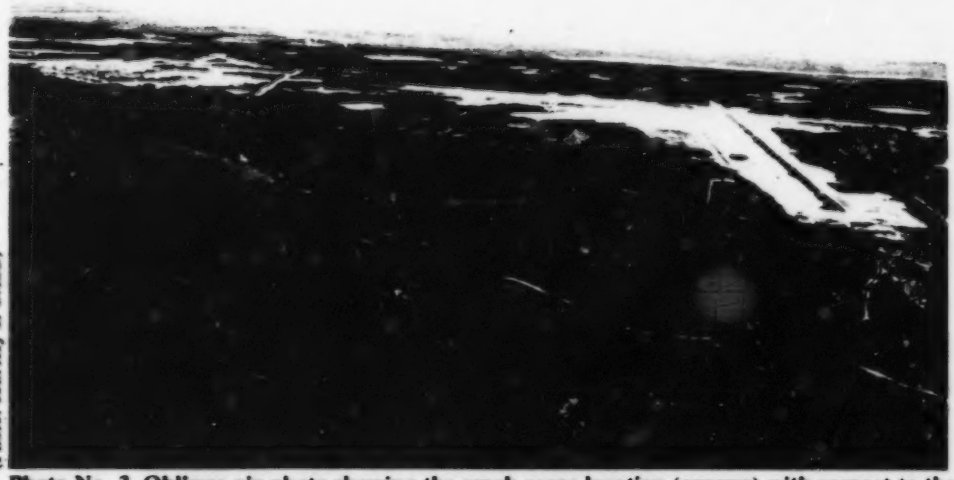
A bus was brought in from a local cab company to give the men a place to warm up. A local paving company, with the contract to clear snow from 27 kilometres of roads surrounding the airport, was called in to salt Boathouse Road because some of the emergency vehicles were having difficulty navigating the slope.

Since this report deals with the emergency response to the crash, it does not include material relevant to "why the plane went down." But it is impossible to ignore the investigating agency, the Canadian Aviation Safety Board. Canadian Aviation Safety Board staff established themselves in the Distinguished Visitors Lounge in the international area of the airport, as soon as they arrived on Thursday afternoon. They took over media relations, using both a public information officer and their chief investigator. They also decided who would be issued passes to the site, although the RCMP maintained control of who actually was granted access, and when.

The Canadian Aviation Safety Board also sought military help in organizing two formal searches: one starting at the end of runway 2202 where the plane had taken off, and the other through the bush, from the top of the hill toward the area of first impact. Both searches were organized to determine if anything might

have fallen off the aircraft before the crash. Because heavy snow was forecast for Saturday afternoon, all searches had to be completed before then.

They worked closely with the RCMP, when gathering material relevant to the investigation, since the RCMP have criminal jurisdiction. For example, when the flight recorders were found, an RCMP officer took them to Ottawa where they could be examined in the National Research Council laboratories. The RCMP also took plane parts to a forensic laboratory in Ottawa to determine whether sabotage was involved. The tests proved to be negative.



(Photo: courtesy of CASB)

Photo No. 3 Oblique air photo showing the crash scene location (arrows) with respect to the Town of Gander and the Airport. Major fires had been extinguished.

COVERAGE AND EMOTIONAL IMPACT

THE MEDIA

At 0700 hours, less than 15 minutes after the crash, someone called radio station CKCM in Grand Falls, Newfoundland, to report an air crash in Gander. The caller said it was not yet known who was on the plane, precisely where it crashed, or if there were any survivors. But the key information had reached the news media -- there had been a crash!

The reporter in Grand Falls made some enquiries and relayed the information obtained to radio station CKGA in Gander. They too had received a call, but were unwilling to broadcast something not yet checked out. CKGA's news director and a reporter were then called. When the news director arrived at the station he grabbed a tape-recorder and a van and headed down the Trans-Canada Highway toward the airport. En route, he saw that the emergency response was under way. Because he knew the town police, he was able to get by a police roadblock and park on the highway, at the access road to the site. He had little difficulty obtaining key information. A police officer told him that a plane went down and that things did not look good. The news director could see that ambulances were not racing to or from the scene, and that most people were simply standing around. He did not try to speculate. He simply reported to his station what he saw.

At approximately 0720 hours CKGA broke the story. At 0730 hours, they went on the air again, this time with a live report from the news director at the scene. At the same time, CKCM was phoning the RCMP in Gander and was able to get a confirmation that there had been a crash. They too put this information on the air, but they also did something more important. The CKCM reporter -- the one who got the first tip -- called Broadcast News (BN) in Halifax, the main Canadian broadcast service, and told the person on duty what he had heard. At approximately 0746 hours Newfoundland time, just one hour after the crash, BN put out its first report stating only that the RCMP had confirmed the Gander air crash. At 0754 hours, the second major item indicated that the plane had more than 200 persons on board.

The Broadcast News wire goes directly into the major BN-CP newsroom in Toronto. (BN is owned by Canadian Press.) CP connects by agreement to all Canadian daily newspapers, and to three of the world's major news agencies: Associated Press, Reuters and

Agence France-Presse. It was not long before CP fed to AP, Reuters and AFP in New York.

By 0800 hours, the story was going around the world. Both the Pentagon in Washington and Fort Campbell in Kentucky -- the soldiers' home base -- first heard about the crash from the media. The Pentagon got its first news when CBC called for confirmation and comments. Not long after that the Federal Aviation Agency in Atlanta, Georgia, told AP that the passengers on board the plane were U.S. soldiers.

By 0810 hours, the airport, the hospital, the police and others were receiving phone calls from around the world. As the story was spreading, the Gander media were moving in on it. The CBC in Gander had received a tip, just after the CKCM one, and had promptly despatched a reporter, camera person and assistant, and freelancer to the airport. The reporter, first to arrive there, received three confirmations within minutes.

At 0745 hours, CBC broke the story -- later than CKGA because they were being cautious. They had previously been misled by a reporter who thought he had seen an incident at the airport and phoned in the story. It was inaccurate.

The story kept building up. CKCM obtained the Emergency Co-ordination Centre phone number, called, and managed to get a live interview with the airport manager. The number had been made available by the RCMP so that the local media could get quick, reliable information. Because the number was passed around, the Emergency Co-ordination Centre was later plagued with media calls.

Once a few stations have a story, all other media hear about it quickly. They monitor each other. The local newspaper editor heard the story over CKGA, and one of his staff received a call from a friend. The editor of The Evening Telegram in St. John's, heard it on CBC and called a stringer in Gander, who responded fast enough to get the first still photo of the crash site. The photo made the front pages of newspapers around the world. BN called its reporter in Halifax, who booked a charter flight to Gander along with Atlantic Television (ATV), a radio reporter and a staffer from The Evening Telegram.

At the airport, phones were quickly installed by Terra Nova Telephone in the room designated as the media room in the airport plan. By the time the airport manager held his first formal news conference at 0830 hours, the airport was staffed by photographers from the local paper and from a paper in St. John's, a local CBC camera crew, and reporters from the local radio stations.

When the airport manager, after a brief discussion, agreed to take the media to the site, two photographers and one cameraman were ready and anxious for the trip (the others were filing stories). They were driven onto the site by an airport duty manager. Being in an official airport vehicle, they did not have difficulty getting through the RCMP roadblock. Because the RCMP on-site commander had not been informed of the media visit, he ordered them away and would not allow any more visits until the following afternoon. However, he did allow those involved to take pictures, from a spot on the access road close enough for them to see the main part of the crash scene.

Later, the RCMP arranged for media overflights. This caused some problems among the media. The CP photographs went only to AP in New York, although they were supposed to be shared in Canada as part of a pool arrangement. From then on, when pool arrangements were discussed, the photographers insisted they not be represented by CP.

By this time the world was getting ready to go to Gander. CP had already talked to AP and had arranged to charter a flight from Halifax. CP would eventually buy all the original pictures taken by the local photographers originally allowed on-site by the airport manager, paying $1,000 for those that went world-wide, and $10,000 for a roll of film that did not turn out.

CBC chartered a National Defence Hercules aircraft out of Ottawa, and arranged to load its satellite ground station which would give it direct access from the airport tarmac in Gander. They agreed to share the flight with their French counterpart Radio Canada, a crew from CTV and Global, and with Maclean's magazine.

ABC, NBC and CBS were also gearing up for a major assault on Gander. Most sent their crews by air from New York. NBC, in their view, had been beaten on some earlier internatinal stories, especially on the

TWA Shi'ite Moslem hijacking. They ordered their crews in London, England, to book an available satellite ground station and transport it to Gander International Airport, via a commercial airline. Others made similar, though less elaborate arangements.

Before the day was over, reporters, photographers, and video crews, were either in Gander or en route. The media included major U.S. dailies, such as the New York Times, the Washington Post and Newsday; major magazines, such as Newsweek and Time; and photographers representing Paris Match, and Der Spiegel. Others included the major Canadian dailies, such as The Toronto Star, The Toronto Sun, The Gazette (Montreal), The Globe and Mail; and key worldwide radio networks, which included: NBC, ABC and CBS. (The Canadian radio staffers tended to leave once they were covered by their U.S. services.) Eventually, about 300 media personnel, including reporters, editors, producers, photographers, cameramen and soundmen congregated at the airport.

Not all the arrivals went off smoothly. It took five hours for CBC to load its satellite ground station onto the Hercules aircraft in Ottawa. The van carrying the station kept slipping on the ramp, and finally had to be put in place with a forklift. The delay irritated not only the CBC but also CTV and, for reasons of lack of space, was later taken off the flight. The major investigating agency, the Canadian Aviation Safety Board, was also frustrated. Some of their investigators were already in Gander but others, including the chief investigator and the main spokesperson, were flying in with the CBC. The five-hour loading delay kept the Canadian Aviation Safety Board staff sitting in the aircraft.

Although NBC got their flight into Gander, they could not use their satellite connections for two days. They eventually discovered that the ground station was not pointing in precisely the right direction. NBC ended up renting time from the CBC.

Upon arrival the media established a routine. Almost all of them attended the irregular press briefings, given first by the RCMP and later by Transport Canada and the Canadian Aviation Safety Board. On a few occasions, these briefings commenced ahead of schedule which frustrated some reporters. Because the news conferences were not only uninspiring in terms of content, but also lacked visual appeal, some media searched elsewhere for news.

Some photographers, and an ABC camera crew, managed to get onto the roof of the morgue to photograph and tape somewhat blurred images of the growing rows of bodies. All the media used this material the next day. Others tried very hard to get other material by looking for a path through the woods to the site, or by staking out the hospital hoping that bodies would be brought to the hospital morgue. A local TV reporter was seen taking shots of the hospital morgue, which is beside the hospital's staff entrance. He then wandered onto the main floor, stopped two maintenance workers and told them he was looking for the doctor who had the key to the morgue. He was told he would have to approach security. Minutes later, he was peeking through the morgue's frosted panes trying to pry the windows open. He eventually left in frustration.

The lack of a U.S. spokesperson frustrated the U.S. media. A U.S. Navy spokesman did issue a few statements at the airport, early on Thursday morning, confirming that the passengers were U.S. soldiers and that the toys found at the site were Christmas gifts. But there were no further U.S. spokespersons, until a U.S. Army general issued a brief statement Friday afternoon. On orders from Washington, the U.S. Army deliberately refrained from appearing in front of the media. They did not want to give the impression that they were undermining Canadian sovereignty. They were also anxious to reach an agreement with the Canadian Government on the removal of bodies to the United States, and they felt it would be best achieved by appearing unaggressive. Even the U.S. media, with good military contacts, could not obtain information. The U.S. Army, however, participated after the Canada-U.S. agreement was announced on Saturday afternoon, and on Sunday when the town held a memorial service.

The Canadian Aviation Safety Board, Transport Canada and the RCMP, organized pool flights for those who wished to see the scene from the air. Partly because of weather conditions, and partly because the site was constantly being flown over by officials of the RCMP and Transport Canada, only a few flights took place. By early Friday afternoon most of the media were frustrated. They wanted pictures to go along with their stories.

Late Friday afternoon, a bus tour was organized by the RCMP on-site commander, the RCMP superintendent and the Canadian Aviation Safety Board. Three buses were engaged, to ensure that there was enough room for everyone who wanted to go. The buses moved slowly

through the site, and stopped on request, so that everyone could see. By that time, the only remaining bodies were in the pit, out of the view of even long-distance lenses. Nevertheless, there were enough shots of workers and wreckage to satisfy the most enthusiastic reporter.

By Friday afternoon, the major news source was the Canadian Aviation Safety Board's chief on-site investigator. He proved very skillful in providing specific details, while at the same time avoiding all speculation. His statements received the most media coverage. Usually he would report any findings, such as..."the plane took off at 0645 -- it was one minute 40 seconds from take-off to the crash,"..."the black box has been found"..."the pilot did not de-ice the plane." He declined to assess whether these points were significant.

When it was announced Saturday that all bodies would be flown to Delaware, and that all autopsies would be done by U.S. officials working under Canadian supervision, the U.S. media were no longer interested in the Gander aspects of the story. They became interested in the U.S. aspects. Story after story developed about the airline involved in the crash, and the United States Government's role in paying tribute to the dead, especially after the President and the Vice President became involved.

THE PUBLIC

After the media had packed away their microphones, tape recorders and cameras, Newfoundland's aviation town was left largely to itself -- and its nightmares. While the nightly news reports had explained the crash to the world, for the residents of Gander the crash could not be understood in a matter of seconds. The magnitude of the disaster was overwhelming.

"It was a shock feeling of helplessness, I guess. There was just nothing you could do about it -- no survivors, an awful feeling. I'm still saddened by the events that happened. I feel sorry for the families. The young men are all younger than I am. I don't think there's a day since it happened that I don't think about it." Many past generations of Newfoundlanders had felt this same helplessness, waiting on shore with blankets and bonfires, as the ocean tore apart a vessel and drowned its crew.

When the town decided to hold a memorial service for the victims, 1,100 people attended, filling two churches. The service was broadcast and then rebroadcast on local television. A video-recording of the service was circulated around town, and made available to the families in Kentucky who lost their loved ones.

In the schools, on the day of the crash, classes were led in prayer by teachers who said it was the only thing they felt they could do to help.

One man's first reaction was disappointment, because he could not give blood to help the survivors.

For those who worked at the crash site and at the morgue, the disappointment was even more heartfelt, the memories more vivid. "There's got to be one survivor, at least one".. was a prevalent sentiment among the rescue workers.

One physician, distraught after tagging body after body, threw down a set of tags beside a pile of bodies and left. Another went back to the hospital, took off her bloodstained and dirty outer clothing, and asked that it be destroyed. A painful memory for many concerned the re-use of body bags.

For many of the workers, the horrific reality of the situation did not sink in for days, even weeks. One young chap working at the site was literally stunned. He said he had never even been to a funeral before.

Several days after the crash, a fire-fighter was at home alone with his 13-month old child cradled in his arms, watching the nightly news. The newscast featured a report on Ronald Reagan's trip to Fort Campbell where he attended a memorial service for the servicemen. A woman was shown holding an infant and crying. "My wife was out...that's when I broke down... it lasted for 30 seconds...then I put my baby to sleep."

A number of studies, relating to air crashes, have shown that emotional problems hit not only survivors and those who rescue them, but also those who respond. Being on the site of an air crash, where such tasks as recovering bodies are performed, or being off-site where it is easy to feel the continuing pressure of making decisions, can be a very disturbing experience.

Although Carleton University's Emergency Communications Research Unit did not make a detailed study of emotional effects at Gander, it was possible to identify emotional problems of many kinds. There were people with job problems and family problems. There were those who showed extreme irritability, while others became uncharacteristically sullen. Some experienced problems for months.

At Gander, because so many people were involved in responding to the crash, the emotional effects spread throughout the entire community. Local physicians met to discuss this problem, determine how they could spot such distress and how they could help people cope with it.

The emotional reaction was felt beyond Gander. One man, a resident of a community some distance away, wrote a poem to express his feelings.

CONCLUSION

WHAT IF?

Inevitably, incidents such as the Gander air crash arouse questions of: WHAT IF? What if there had been survivors? What if the plane had crashed in the community?

The answers to such questions inevitably contain speculation. But it is possible to tie the speculation to available data. If any of the victims had survived, there would have been few changes in the initial response, for it was already survivor-oriented.

The initial response by Transport Canada, the RCMP the town fire department, the base, the ambulance and the hospital assumed that there were survivors. There had been survivors from the Czechoslovakian and Belgian crashes, so it was hoped that this time there would also be survivors.

That is why the initial fire response concentrated on clearing a path for rescue vehicles, and why the town firemen organized search parties instead of trying to attack the fire. That is why the first base response included persons with medical training, and why the RCMP sent a car to stand by near the hospital to maintain a clear route from the site. That is why the ambulance, and the triage units went to the site. It is also why the RCMP helicopter and dogs made searches, even after it was obvious, to all but the most incredibly optimistic, that there were no survivors.

If there had been survivors, some things would have changed. The Transport Canada maintenance people would have taken over site command with the RCMP and others, responding to their needs. The off-site command post would have concentrated on the same concern. Area hospitals would have despatched additional ambulances and medical staff. The school cafeteria would have been used as a casualty clearing point or reception area. Patients would have been discharged from the hospital. The RCMP helicopter, and the search and rescue helicopters, would have been used to transport victims in critical condition to burn centres elsewhere. The systems were therefore in place and would have been activated as needed.

There is little doubt that the resources of the hospital and the community would have been strained, as they had been when the Czechoslovakian plane crashed. But these services would soon have been augmented by outside support.

The scenario for a crash in the town of Gander is a little harder to visualize, but the response to it would have followed a certain predictable pattern. The RCMP would still have been in charge of the site, and fire command would have shifted to the town chief. Since all three fire departments work so well together, this would not have created any difficulties.

The town would have had its own command post to deal with town problems. This would have created a few extra strains, because town planning is not as satisfactory as airport, RCMP, base, fire and hospital planning. These might be exacerbated if the province, which stayed mainly out of the December 12th crash, had become involved in providing emergency assistance to the town.

There is no evidence to suggest that control of the site, assessment of priorities, and the role of the hospital and other agencies, would have been much different had the crash of December 12, 1985, occurred in the Town of Gander, or if there had been survivors.